User Guide

Ethernet Broadband Router

BR700

MOTOROLA

intelligence everywhere™

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. THE UNIT MUST NOT BE EXPOSED TO DRIPPING OR SPLASHING. DO NOT PLACE OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ON THE UNIT.

CAUTION: TO ENSURE REGULATORY COMPLIANCE, USE ONLY THE PROVIDED POWER AND INTERFACE CABLES.

CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.

This device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Postpone router installation until there is no risk of thunderstorm or lightning activity in the area.

Do not overload outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords where they are attached to plugs and convenience receptacles, and examine the point where they exit from the product.

Place this equipment in a location that is close enough to an electrical outlet to accommodate the length of the power cord.

Place this equipment on a stable surface.

When using this device, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Read all of the instructions {listed here and/or in the user manual} before you operate this equipment. Give particular attention to all safety precautions. Retain the instructions for future reference.
- Comply with all warning and caution statements in the instructions. Observe all warning and caution symbols that are affixed to this equipment.
- Comply with all instructions that accompany this equipment.
- Avoid using this product during an electrical storm. There may be a risk of electric shock from lightning. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet, and disconnect the cable system. This will prevent damage to the product due to lightning and power surges.
- Operate this product only from the type of power source indicated on the product's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the equipment by local lightning strikes and other electrical surges.

Different types of cord sets may be used for connections to the main supply circuit. Use only a main line cord that complies with all applicable product safety requirements of the country of use.

Installation of this product must be in accordance with national wiring codes.

Place unit to allow for easy access when disconnecting the power cord/adapter of the device from the AC wall outlet.

Wipe the unit with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.

This product was qualified under test conditions that included the use of the supplied cables between system components. To be in compliance with regulations, the user must use these cables and install them properly. Connect the unit to a grounding type AC wall outlet using the power adapter supplied with the unit.

Do not cover the device, or block the airflow to the device with any other objects. Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.

Installation must at all times conform to local regulations.

FCC Compliance Class B Digital Device

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by Motorola for compliance could void the user's authority to operate the equipment.

Canadian Compliance

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Cet appareil numérique de la classe B respects toutes les exigences du Règlement sur le matériel brouilleur du Canada.

FCC Declaration of Conformity

Motorola, Inc., Broadband Communications Sector, 101 Tournament Drive, Horsham, PA 19044, 1-215-323-1000, declares under sole responsibility that the WR850G, WE800G, WA840G, WN825G, WPCI810G, and BR700 comply with 47 CFR Parts 2 and 15 of the FCC Rules as a Class B digital device. This device complies with Part 15 of FCC Rules. Operation of the device is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may cause undesired operation.

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Section 1:Overview

Congratulations on purchasing the Motorola Ethernet Broadband Router BR700. With this router you have entered the world of convenience and independence. Your router enables you to set up your own private network for your PCs to: access the Internet, share a printer, even participate in online gaming.

With a built-in firewall and Network Address Translation (NAT), your Internet connection is robust and secure, giving you the security to use the Internet without fear that your network might be compromised.

Upgradeable firmware also keeps the router's control software up-to-date, so you'll know you have the latest version. The Ethernet Broadband Router BR700 captures the latest technology in a package that stays current, protects your home network, and provides you easy home network management.

Ethernet Broadband Router BR700

Your router is really several products built into one unit:

- Internet Sharing
- 4-port Full Duplex 10/100 Ethernet Switch and Router
- Firewall and NAT protection

Internet Sharing

Enables you to share your broadband Internet connection with all of your Ethernet connected computers and devices.

4-port Full Duplex 10/100 Ethernet Switch and Router

Enables connection of up to 4 PCs. The routing function enables each of your networked PCs to share files and printers as well.

Firewall and NAT Protection

Protection against Internet intruders is crucial and the built-in Firewall will protect you. Of course, the product also supports Virtual Private Network (VPN) connections through the firewall, allowing you the freedom to connect when you need it.

Also supported are the NAT and MAC filtering protocols, giving you the choice to share your Internet connection with only those whom you designate.

Your Motorola Ethernet Broadband Router BR700 protects and connects you by sharing your files, Internet connection, printers and multi-player games, all in one great unit.

Features

The BR700 has the following features:

- CD-ROM based Installation Wizard to provide easy installation
- Web-based configuration of features using any web browser
- Firmware upgrade to stay current with latest specifications
- Firewall protection with NAT translation, IP and MAC address filtering
- A built-in DHCP server to easily configure a private Local Area Network (LAN)
- Virtual Private Network (VPN) pass-through allowing remote connection with your corporate network

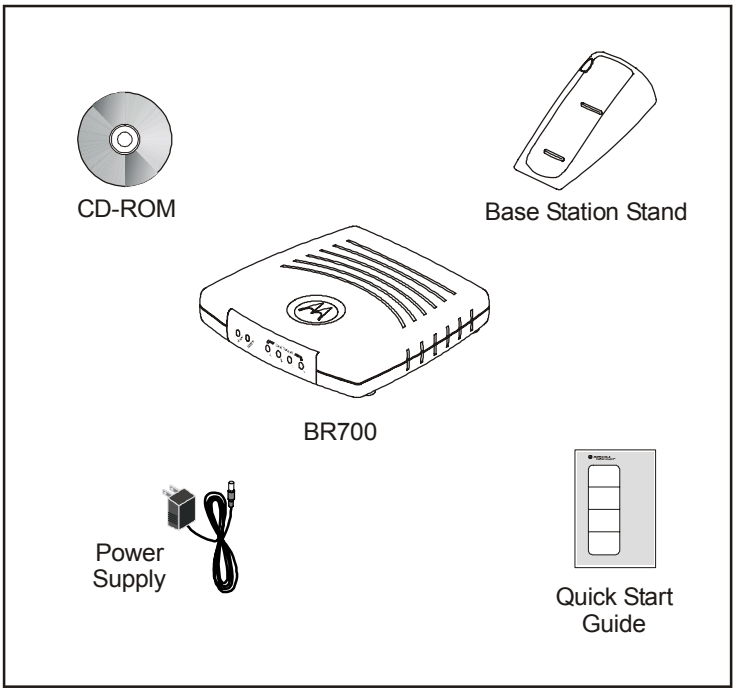
Understanding Your User Guide

The User Guide is subdivided into the following sections:

Overview	Provides a general introduction for using your product, the type of technology used, and recommended practices for using it.
Installation	It is assumed that you will use the Installation Wizard on the CD-ROM to setup your unit. If not, this section provides details on getting your unit up and running. Once you have completed this section, your unit will be active and ready to work.
Configuration	Provides descriptive details for using the Configuration Utility to manage your unit.
Glossary	List of terms and acronyms

Box Contents

Your box contains the following:



Understanding Functions

The various technologies and features utilized by your router require some explanation so you can make the correct choices when configuring your router.

Router

Routers connect two networks together, or in your case, your home network with the Internet (which can be thought of as a very large network). Routers provide bandwidth security by keeping data out of your home network where it does not belong.

The router's Firewall inspects each packet of data as it flows through the port before delivering it to the appropriate PC. Network Address Translation (NAT) translates one set of IP addresses, usually private, to another set, usually public. This is how your network remains protected and private on the Internet.

TCP/IP

Transmission Control Protocol/Internet Protocol (TCP/IP) comprises the backbone of the Internet. IP moves packets of data between nodes while TCP verifies delivery from client to server. Every device you hook up to your router identifies itself with an IP address. You are able to assign devices on your network with either a static or dynamically assigned IP address.

Static IP Address

A static IP address is a fixed address that is assigned manually to a device on the network. Static IP addresses must be unique and cannot be shared, therefore they are used in situations where the address should never change, like print servers or PC servers.

If using your router to share an Internet connection, your Internet Service Provider (ISP) might have assigned you a static IP address, which you will use when configuring your router. See more information in *Configuration*.

Dynamic IP Address

A dynamic IP address is a temporary IP number, dynamically or randomly generated by a DHCP server. The address lasts only as long as the server allots, usually in the space of a day or two. When the IP address expires, the client is automatically reassigned a new IP address, ensuring smooth communication.

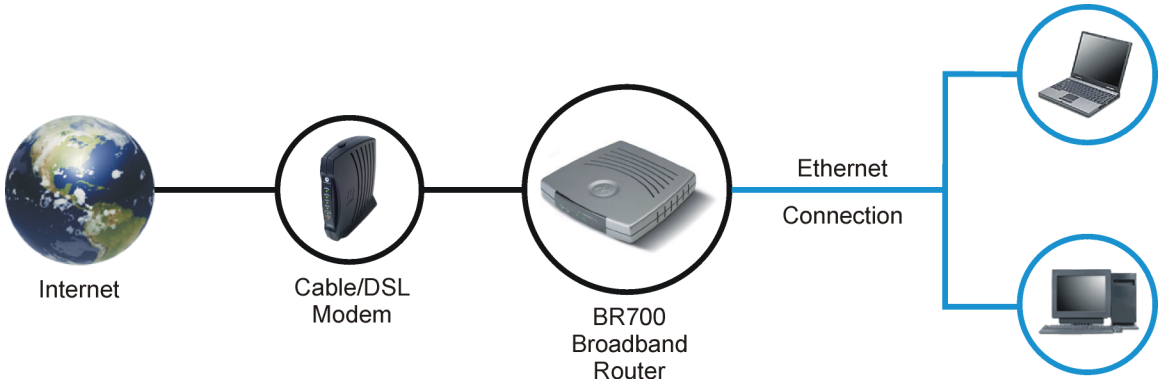
If using your router to share an Internet connection, your ISP might have assigned you a dynamic IP address, which you use when configuring your router. See more information in *Configuration*.

DHCP Server

A Dynamic Host Configuration Protocol (DHCP) Server assigns IP addresses to clients connected to the router. Client is the general term used to describe any device that connects with your unit. The client (PC, gaming device, etc.) is automatically assigned an IP address every time a device is added to your network, freeing you from manually assigning IP addresses.

Simple Home Network Diagram

Your router serves as the centerpiece of your network, allowing you to share files, printers, and the Internet connection. A sample Local Area Network (LAN) is shown below:



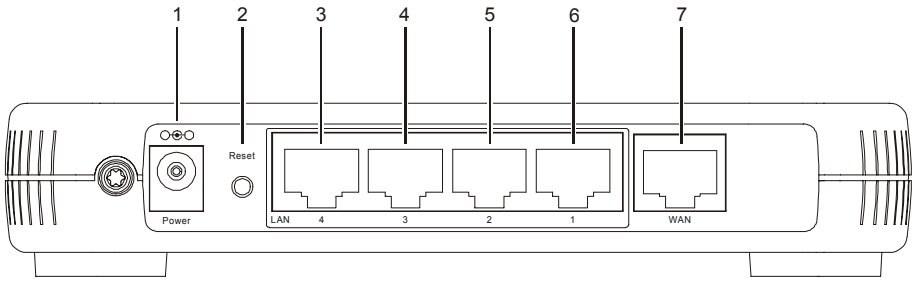
The Internet communicates with the modem which in turn communicates with the router. The router acts as the gateway to your network, sending information to whichever device asks for information, be it from requests for Internet access to file sharing to multiplayer games. The router controls the information for your network, intelligently routing the information to its required destination while at the same time protecting your network from the public domain.

Router Physical Description

The following sections describe the physical characteristics of your unit.

Back of Router

The following illustration shows the BR700 back panel:

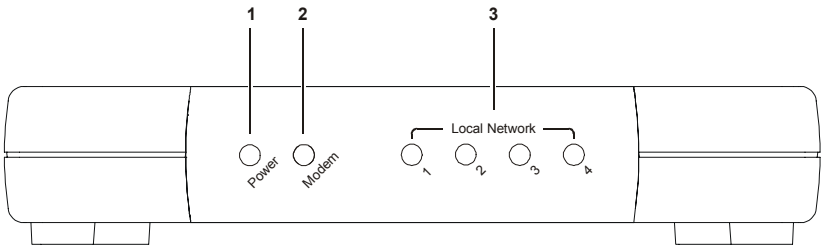


	Feature	Description
1	Power	The receptacle where you plug in the power adapter.
2	Reset Button	A dual-function button. It either resets your unit or resets the unit to the default login settings. If the router is experiencing trouble connecting to the Internet, briefly press and release the Reset button to reset the router. This retains the router's configuration information. To reset the unit to the factory defaults, press and hold the Reset button for more than 5 seconds. This clears the router's user settings, including User ID, Password, IP Address, and Subnet mask. Refer to *Section3:Configuration* for re-configuring the router.

	Feature	Description
3-6	LAN Ports 1-4	These four ports can connect your LAN with Ethernet cables. This enables communication among clients, such as PCs or print servers, on the network. The LAN ports support either 10-BASE-T or 100-BASE-T transmission speeds as well as straight-through and crossover Ethernet cables. Any of these four ports can also serve as an uplink port to other network devices, enabling you to extend your network.
7	WAN	Connect your modem to your router using this port with your supplied Ethernet cable. This is the only port you can use for this procedure. This enables your router to access the Internet. The port supports 10/100 Mbps as well as straight-through and crossover Ethernet cables.

Front of Router

The following illustration shows the BR700 front panel:



The LEDs of the router indicate its operational status.

LED Description

The underlined items indicate activity on the network.

LED	Condition	Color	Status
1. Power	ON	**Green**	The device is powered on and operating normally.
	Blinking	**Green**	Firmware update is in progress.
	Blinking/OFF	**Red**	The power LED turns RED as soon as the reset button is depressed. If the reset button is held down for more than 5 seconds, the LED starts to blink and the router's default user name, password, private LAN IP address, and private subnet mask address will be restored. The LED then turns off until the reset button is released. The power LED keeps blinking RED if the firmware is corrupted, indicating the firmware needs to be restored.
2. Modem	OFF	**None**	No external Ethernet device has been attached and detected. The Ethernet link is down.
	ON	**Red**	The WAN interface has been disabled by the firmware.
	Blinking	**Red**	The WAN connection has lost IP connectivity with its default gateway even though the Ethernet link is still up. Or the WAN connection repair procedure is still in progress.
	ON/Blinking	**Amber**	10BaseT link detected/active traffic present.
	ON/Blinking	**Green**	100BaseT link detected/active traffic present.
3. LAN (x4)	OFF	**None**	No external Ethernet device has been attached and detected. The Ethernet link is down.
	ON/Blinking	**Amber**	10BaseT link detected/active traffic present.
	ON/Blinking	**Green**	100BaseT link detected/active traffic present.

Section 2:Installation

To get your network up and running:

- Setup your hardware.
- Insert the CD-ROM for Product Setup. Follow the prompts.

If you prefer to setup the router's software manually, refer to the Manual Software Setup found later in this section.

The following sections provide detailed instructions for completing these tasks.

Hardware Setup

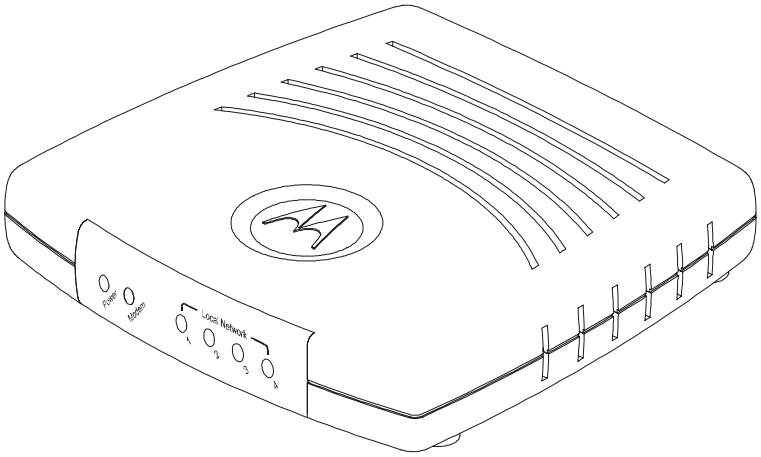
Hardware setup includes:

- Physical Installation: where you physically place your unit.
- Electrical Connection: how to connect the power cord.

Router Physical Installation

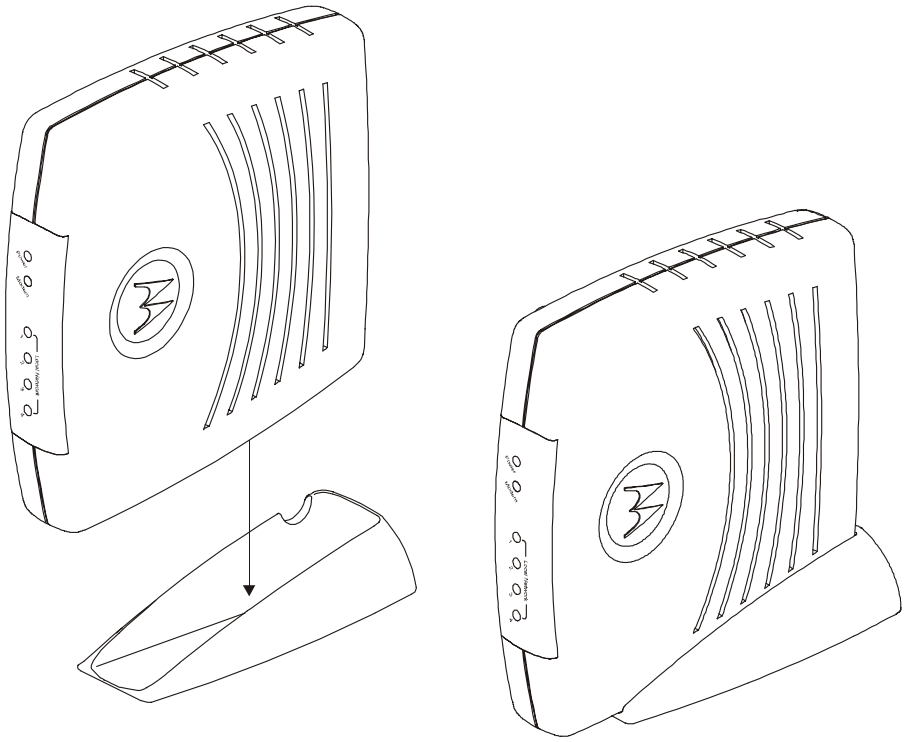
You can install the router in various physical orientations – horizontally, vertically, or hung on the wall. Your own needs determine the best placement.

Horizontal Installation



1 Place the router in the desired location and follow the procedures below for connecting and configuring the unit.

Vertical Installation



1. To use the router in a vertical position, insert the router into the supplied base. The router's foot slides snugly into a notch in the base to keep the unit stable.
2. Follow the installation procedures for connecting and configuring the unit.

Wall Mount Installation

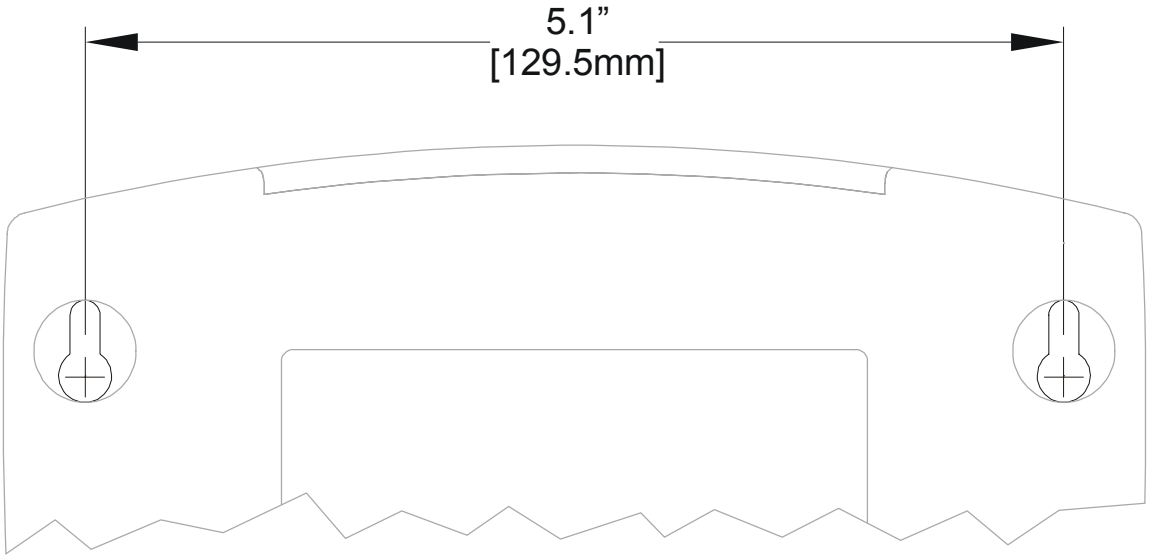
If you mount the router on the wall, you must:

- Locate the unit as specified by the local or national codes governing residential or business communications services.
- Follow all local standards for installing a network interface unit/network interface device (NIU/NID).

If possible, mount the router to concrete, masonry, a wooden stud, or other very solid wall material. Use anchors if necessary; for example if you must mount the unit on drywall.

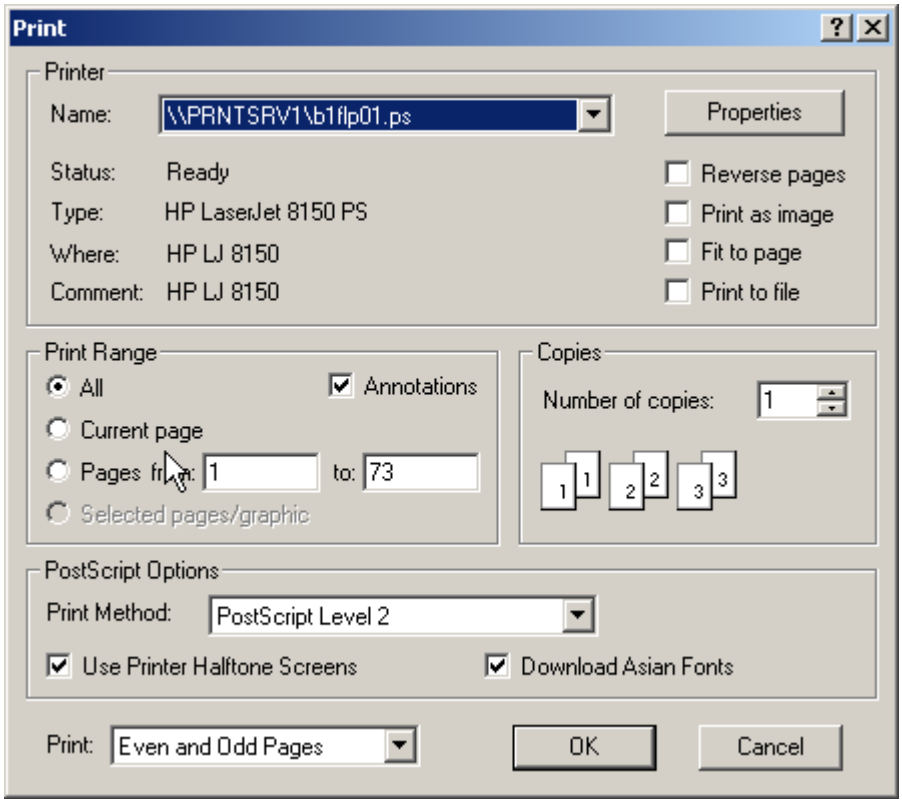
To mount your router on the wall:

1 Print the Wall Mounting Template.



The illustration is drawn at a one-to-one scale, which means that when printed, it provides the exact dimensions required to mount the unit.

2 Click the **Print** icon or choose Print from the File menu to display the Print dialog box:



Be sure you print the template at 100% scale and that Fit to page is <u>not</u> checked in the Print dialog box.

3 Click **OK**.

4 Measure the printed template with a ruler to ensure that it is the correct size.

5 Use a center punch to mark the center of the holes on the wall.

6 On the wall, locate the marks for the mounting holes you just made.

WARNING!

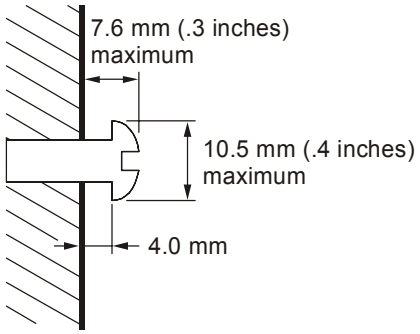
Before drilling holes, check the structure for potential damage to water, gas, or electric lines.

7 Drill the holes to a depth of at least 3.8 cm (1½ inches).

8 If necessary, seat an anchor in each hole. Use M5 x 38 mm (#10-16 x 11/2 inch) screws with a flat underside and maximum screw head diameter of 10.5 mm to mount the router.

9 Using a screwdriver, turn each screw until part of it protrudes from the wall, as shown:

- There must be 4.0 mm (.16 inches) between the wall and the underside of the screw head.
- The maximum distance from the wall to the top of the screw head is 7.6 mm (.3 in).



10 Remove the two plastic feet, nearest to the LED panel, from the bottom of the router to uncover the keyholes.

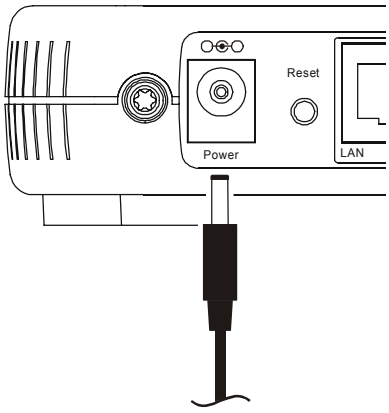
11 Place the router so the keyholes are above the mounting screws.

12 Slide the router down until it stops against the top of the keyhole opening.

13 Follow the installation procedures for connecting and configuring the unit.

Electrical Connection to Router

Your router does not have an On/Off power switch and therefore will only be powered on by plugging in the power adapter:



To power supply

1. Connect the power adapter to the router's Power port, found on the back of the unit.
2. Then plug the power adapter into a grounded and surge protected power outlet.
   - The Power LED on the front panel lights green when connected properly.

Easy Software Setup

Run the Installation Wizard program from the supplied CD-ROM to quickly setup your network. Once your network is up and running, refer to *Section 3:Configuration* for advanced configuration.

Manual Software Setup

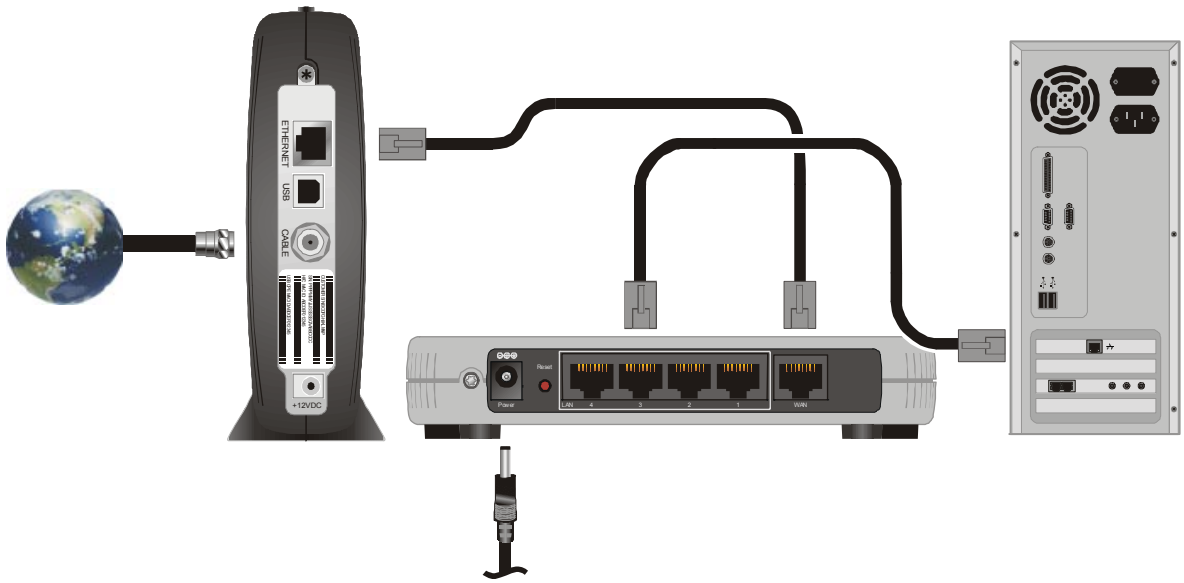
If you'd prefer to manually setup your network, use this section to configure it. This section details the physical connection of the router to your network as well as the configuration needed by your PC.

To set up your network:

- Physically connect and power on the router
- Configure your PCs

If you don't want to use the Installation Wizard from the CD-ROM, follow the instructions below. For advanced configurations, refer to *Section 3:Configuration*.

Connection to Router



When connecting your PC to the router, your PC must be installed first with an Ethernet adapter.

You need two Ethernet cables for this procedure, one cable to connect the router to the modem and one cable to connect a PC to the router.

1 A. If you have been running broadband to a single computer before, unplug the Ethernet cable (that runs between your modem and PC) from the back of your PC and plug it into the port labeled WAN on the back of your router.

B. If you have not been running broadband to a single computer, take one end of an Ethernet cable and plug it into the WAN port. The WAN port is the only port that works for your connection from the modem to the router.

2 Take the other end of the same cable and plug it into your cable or DSL modem. You have now connected the router to the modem.

3 To connect the PC to the router, use a different Ethernet cable and plug it into your Ethernet port on your PC.

4 Use the other end of the same cable and plug it into one of the LAN ports on your router. You have now connected your PC to the router.

5 To connect more devices, repeat steps 4 and 5.

6 To configure the router, refer to *Section 3: Configuration*.

You have now completed the hardware installation. The next section, *Configure Your Computers*, steps you through the various configuration options needed for your PCs.

Configure Your Computers

Each computer that is going to be part of your network needs to "talk" to the router. To do this, you have to configure each PC's network setting to automatically obtain an IP address. This section includes information on configuring computers with the following operating systems:

- Windows 98SE
- Windows ME
- Windows 2000
- Windows XP

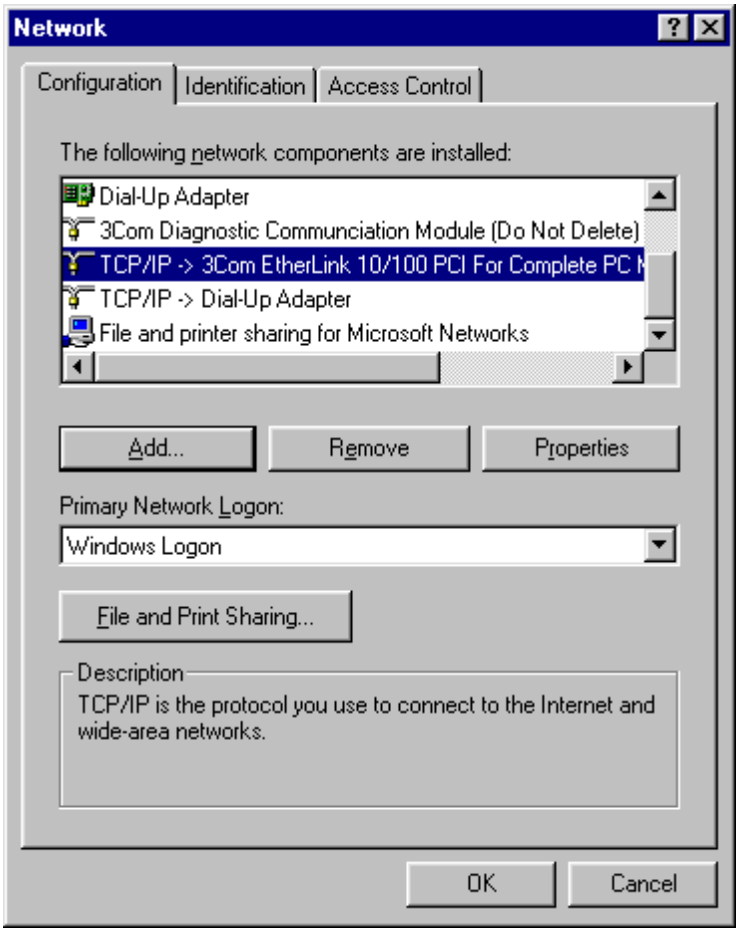
Determine the operating system for each computer you are including in your network and follow the steps to configure the network settings for that PC.

Configuring Windows 98SE and ME

1 Click **Start**.

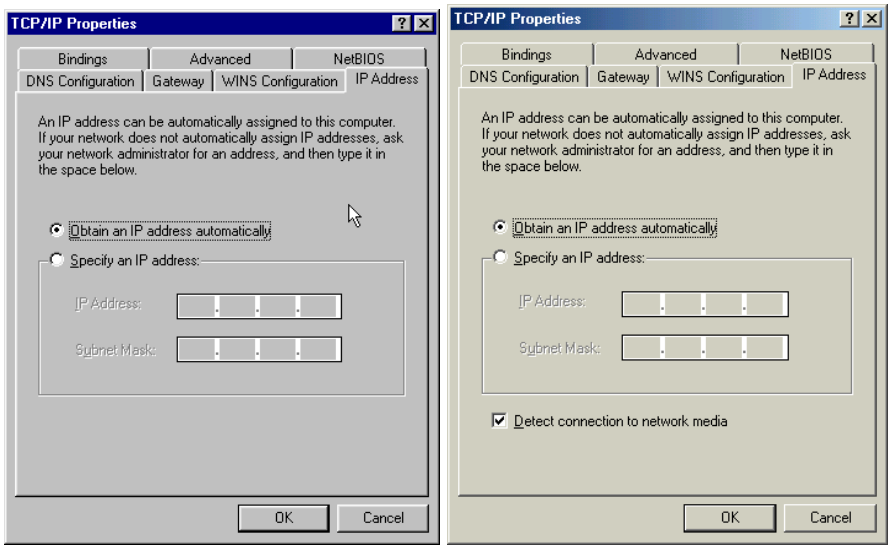
2 Select Settings > Control Panel.

3 Double-click **Network**. The Network window is displayed:



4 On the configuration tab, select the ***TCP/IP*** line the for the appropriate Ethernet adapter. There might be multiple adapters installed – choose only the one that is configured for your adapter. In the example above, a 3Com Ethernet adapter card is installed and is the appropriate choice for this example.

5 Click **Properties**. The TCP/IP Properties window is displayed:


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
OK
Cancel
TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
Detect connection to network media
OK
Cancel

Windows 98SE **Windows ME**

6 Click the **IP Address** tab.

7 Select ***Obtain an IP address automatically***.

8 Click **OK**.

9 Click the **Gateway** tab and check to make sure that the *Installed Gateway* field is blank.

10 Click **OK** twice. Windows might ask for the Windows installation disk. First check to see if the installation files are installed at c:\windows\options\cabs. Otherwise, install your Windows CD and follow the prompts.

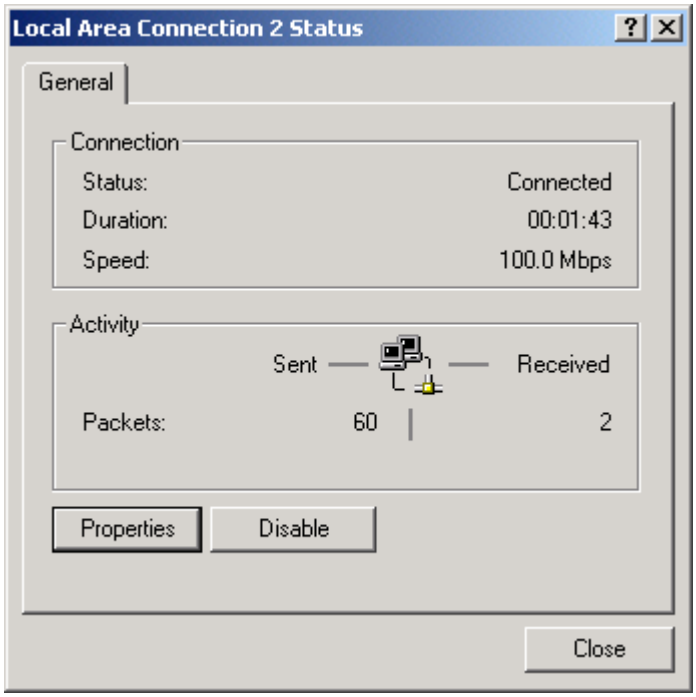
11 Restart your computer to save your settings.

Configuring Windows 2000

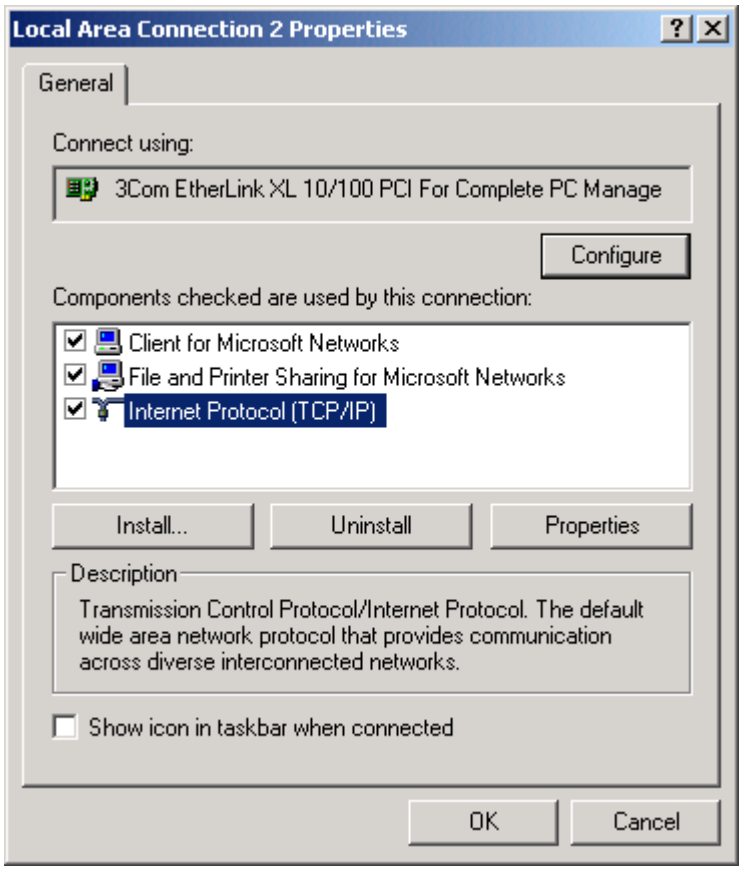
1 Click **Start**.

2 Select **Settings**.

3 Select **Control Panel**. Double-click **Network and Dial-Up Connections**. Double-click **Local Area Connection**.

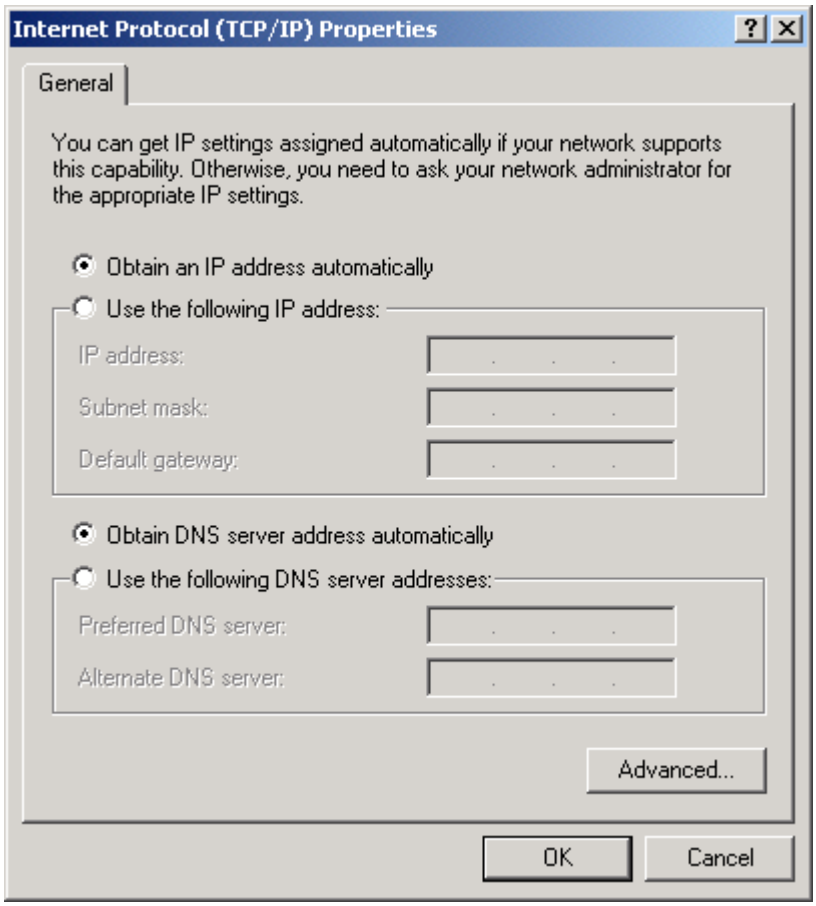


4 Click the **Properties** button.


Local Area Connection 2 Properties
General
Connect using:
3Com EtherLink XL 10/100 PCI For Complete PC Manage
Configure
Components checked are used by this connection:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
Internet Protocol (TCP/IP)
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in taskbar when connected
OK
Cancel

5 Ensure the box next to *Internet Protocol (TCP/IP)* is selected.

6 Highlight **Internet Protocol (TCP/IP)** and click the **Properties** button.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

7 Select ***Obtain an IP address automatically***. Click **OK** twice to exit and save your settings.

8 Restart your computer to save your settings.

Configuring Windows XP

This configuration assumes you have retained the default interface for Windows XP. If you are running the 'Classic' interface, please follow the instructions for Windows 2000.

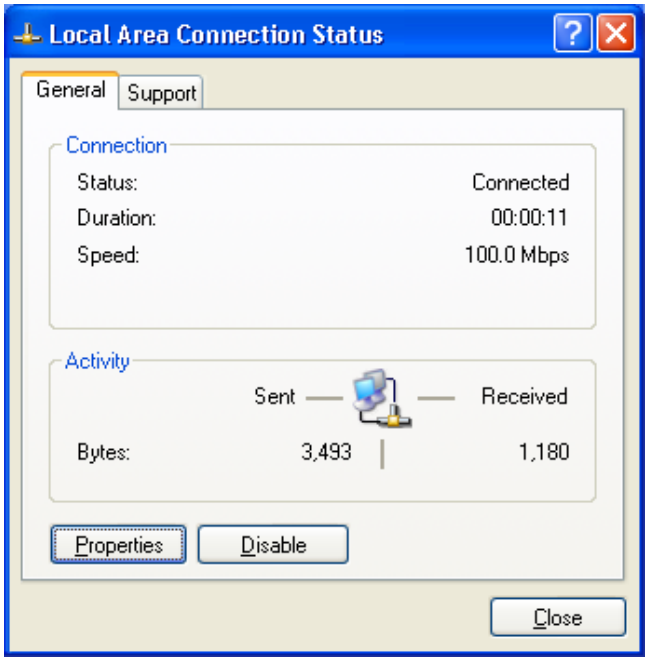
1 Click **Start**.

2 Select **Settings**.

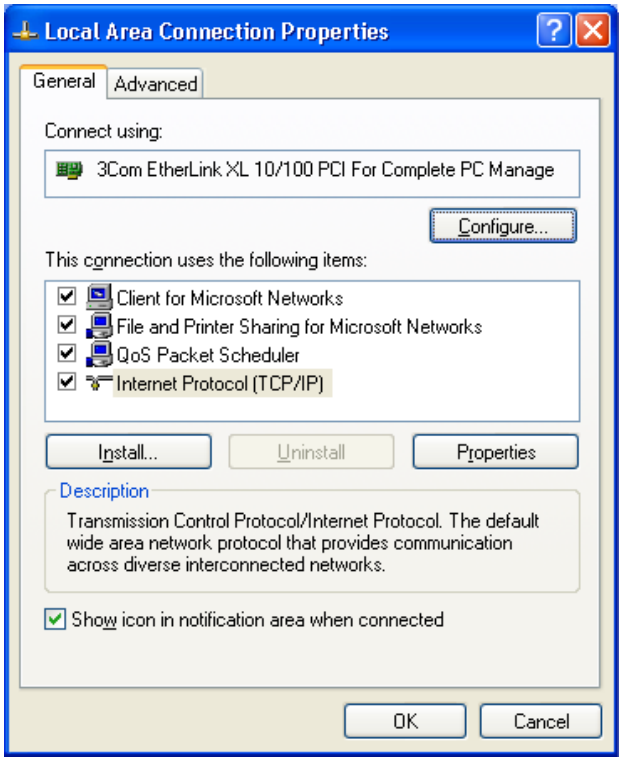
3 Select **Control Panel**.

4 Double-click **Network and Dial-Up Connections**.

5 Double-click **Local Area Connection**.

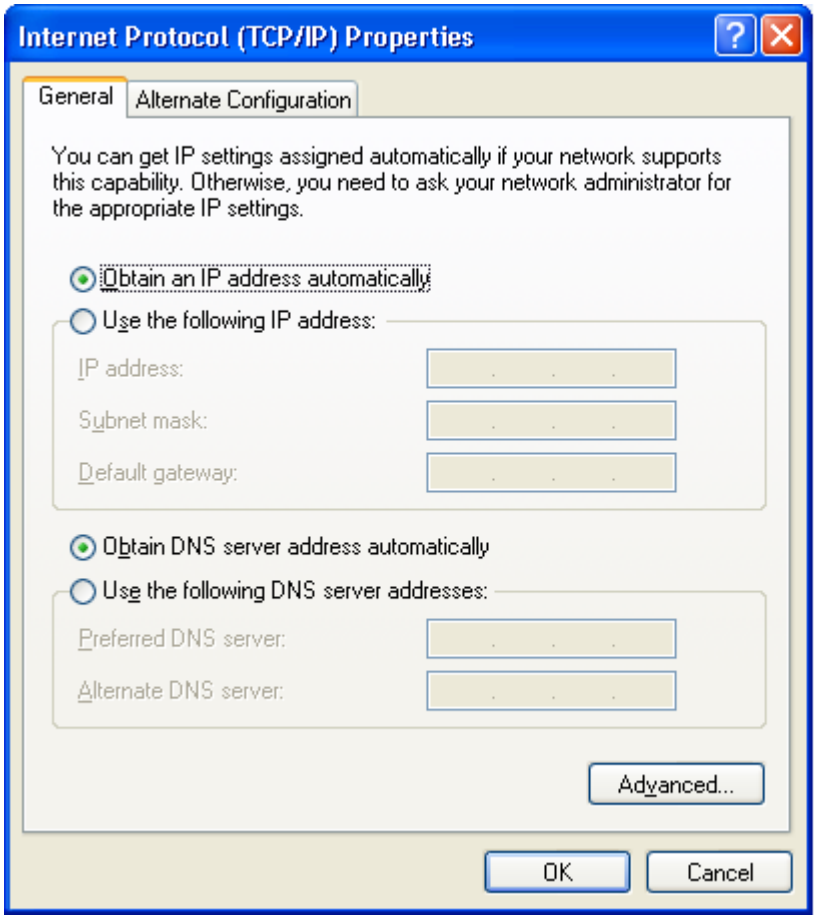


6 Click the **Properties** button.



7 Ensure the box next to *Internet Protocol (TCP/IP)* is selected.

8 Click to highlight **Internet Protocol (TCP/IP)** and click the **Properties** button.

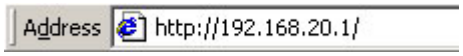

Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

9 Click **Obtain an IP address automatically**. Click **OK** twice to exit and save your settings.

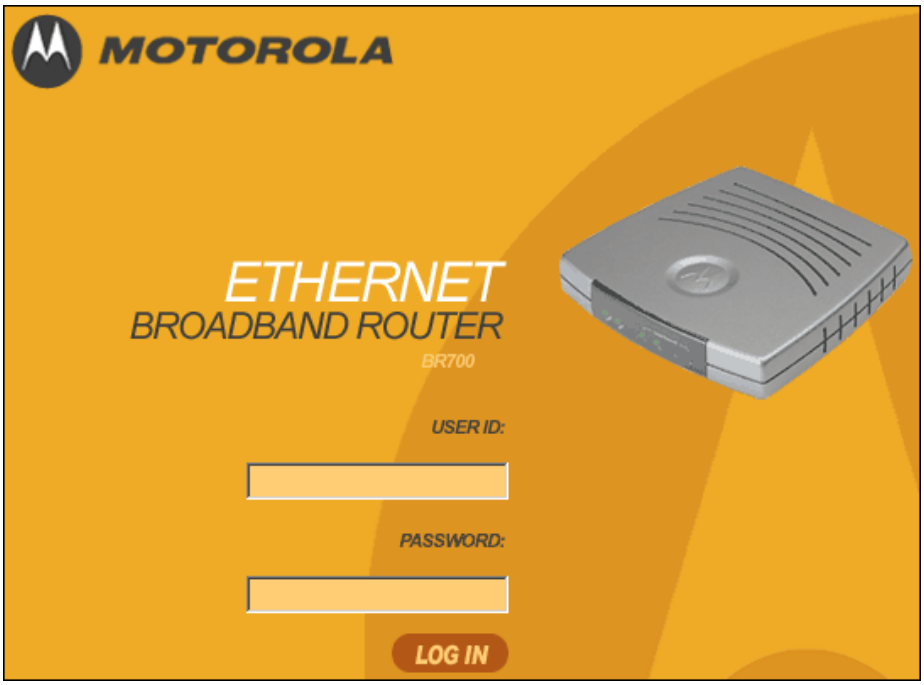
Log In

Log into the router using the following procedure:

1 Once the router is connected, open your web browser. Enter into the URL field **http://192.168.20.1** (the router's default IP address) and **Enter**.



2 The login screen appears.



3 Enter the ***USER ID***. The default factory setting is "admin", without the quotation marks.

4 Enter the ***PASSWORD***. The default factory setting is "motorola", without the quotation marks.

Once you have logged in, for security reasons you should change the User ID and Password.

5 Click **Log In** to enter the Router's Web-based Configuration Utility.

Configure Your Basic Internet Settings

The following settings illustrate how to configure your router for accessing the Internet. Detailed descriptions for using the web-based utility follow this section.

1. Log into the router's *Configuration Utility*. You are presented with the Internet > Basic screen.
2. Starting at the Basic screen, select the ***Connection Mode*** your ISP has indicated you need to use. Based on your connection type, different areas become inaccessible, leaving you only the appropriate fields to fill in the necessary information.

DHCP Configuration

The default setting for the router, DHCP is most commonly used for cable modem connections. There is no configuration necessary for this setting because the ISP automatically supplies the information. Your ISP informs you if this is the connection to use.

1. Verify that DHCP is selected.
2. Click **Apply** to save the setting.

PPPoE

PPPoE (Point-to-Point Protocol over Ethernet) setting is most commonly used for DSL modem connections. Your ISP informs you if this is the connection to use.

1. From Connection Mode, select **PPPoE**.
2. In the PPP User Name field, enter the ***PPP User Name*** supplied by your ISP.
3. In the PPP Password field, enter the ***PPP Password*** supplied by your ISP.
4. Optionally, you might have to enter the ***PPP Service Name*** into this field. Enter the information supplied by your ISP.
5. Click **Apply** to save the setting, or, if you want to start over, click **Cancel**.

Static IP

If you are required to use a permanent IP address for connecting to the Internet, then select **Static IP**. Your ISP informs you if this is the connection to use.

1. From Connection Mode, select **Static IP**.
2. In the IP Address field, enter the ***IP Address*** supplied by your ISP.
3. In the Subnet Mask field, enter the ***Subnet Mask*** supplied by your ISP.
4. In the Default Gateway field, enter the values supplied by your ISP.
5. In the Primary DNS field, enter the values supplied by your ISP. If necessary, enter secondary or tertiary DNS values into the Secondary or Third *DNS* fields.
6. Click **Apply** to save the setting, or, if you wish to start over, click **Cancel**.

PPTP

Point to Point Tunneling Protocol (PPTP) is a service commonly found in Europe.

1. From Connection Mode, select **PPTP**.
2. In the PPP User Name field, enter the ***PPP User Name*** supplied by your ISP.
3. In the PPP Password field, enter the ***PPP Password*** supplied by your ISP.
4. In the PPTP Client IP field, enter the ***PPTP Client IP*** address supplied by your ISP.
5. In the PPTP Server IP field, enter the ***PPTP Server IP*** address supplied by your ISP.
6. Click **Apply** to save the setting, or, if you wish to start over, click **Cancel**.

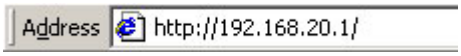
Section 3:Configuration

You can use the information in this section to modify the router's settings. For example you can customize features for your home network, change settings such as your user name or password, view the status of the network, and more.

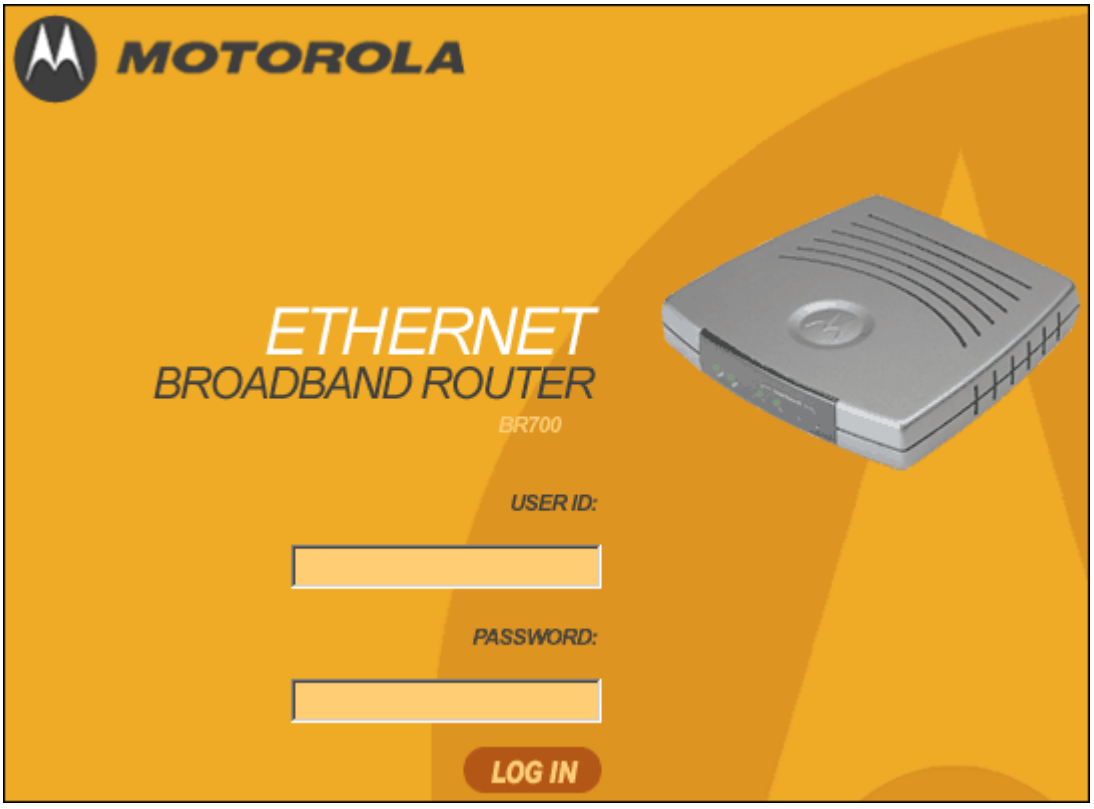
Using the Configuration Utility

Log In

1 Once the router is connected, open your web browser. Enter into the URL field the router's IP address. The default is http://192.168.20.1 (the router's default IP address). Press **Enter**.



The login screen appears.



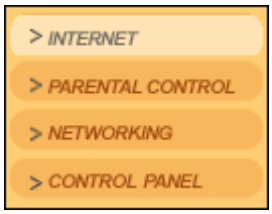
2 Enter the ***USER ID***. The default factory setting is "admin", without the quotation marks.

3 Enter the ***PASSWORD***. The default factory setting is "motorola", without the quotation marks.

4 Click **LOG IN** to enter the Router's **Web-based Configuration Utility**.

Navigation

Each of the following subsections provides descriptions for the components of the router's *Configuration Utility* – accessible from a web browser. These sections include:



- Internet
- Parental Control
- Networking
- Control Panel

To navigate, click on a major section and then the associated subsection. For example, to adjust the time setting, click **CONTROL PANEL** on the left, then **TIME** tab at top on the right. The Web-based Configuration Utility uses Javascript. Your web browser Javascript needs to be enabled.

Help, Restart, and Log Out

Click on the appropriate command to execute the action.

Help	If assistance is required in using the router, click on Help.
Restart	To restart your session with the Configuration Utility, click on Restart. If you see Restart flashing, the change you have made requires that you restart the unit. **For convenience, it is recommended that you finish all of your configuration changes and then restart the unit.**
Log Out	To logout out of the router's Configuration Utility, click on Log Out.

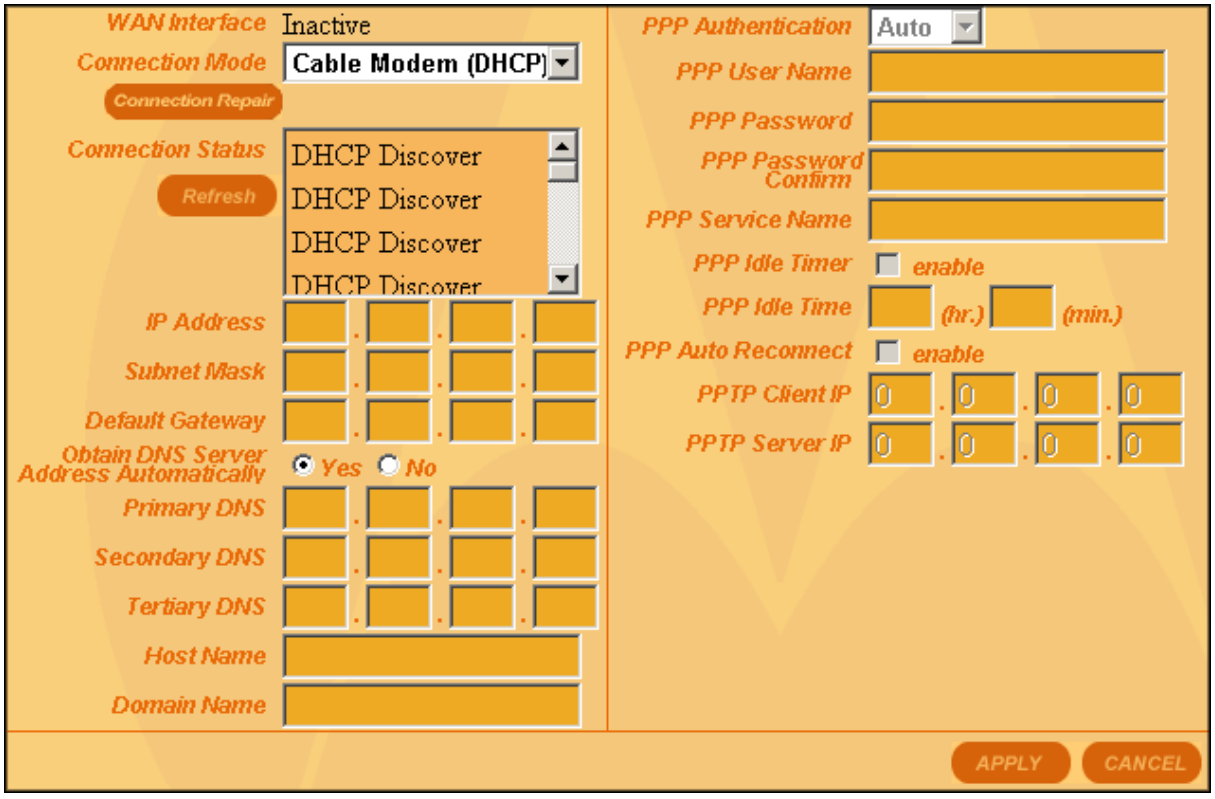
Configuring Internet Settings

These screens enable you to configure your Internet settings:

- Basic
- Advanced
- Network Diagnostic

Internet - Basic

This is the first screen that appears when logging into the web-based utility. It enables you to adjust a large variety of the basic settings for configuring the router's Internet options. To access the screen, click **INTERNET** on the navigation menu. Click **APPLY** to save changes, click **CANCEL** to undo unsaved changes.



The following table provides descriptions for the fields in the Basic window:

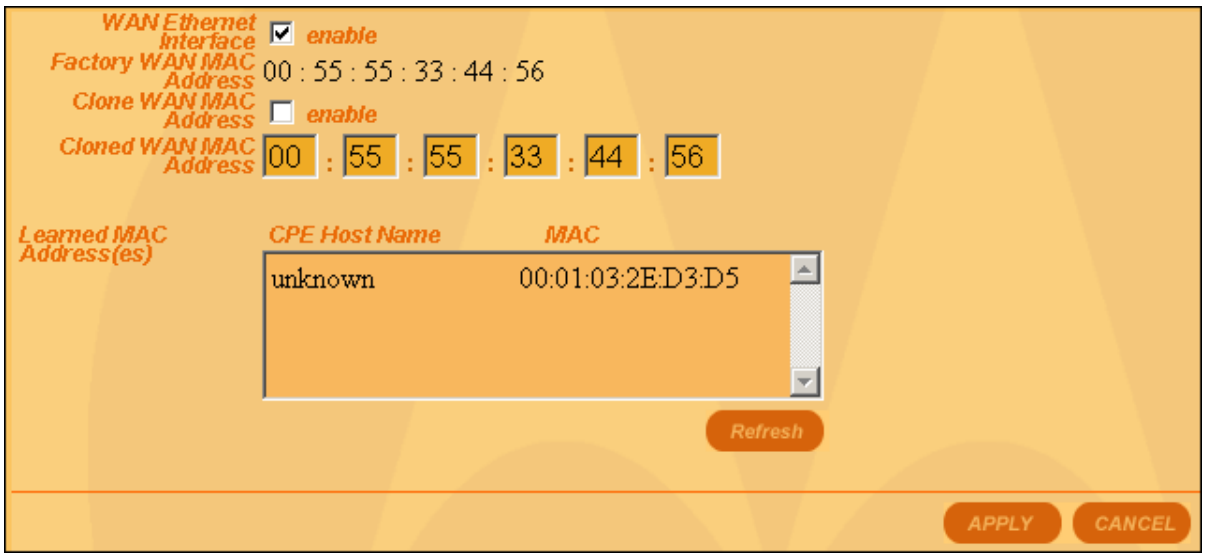
Field or Button	Description
WAN Interface	**Active** Your WAN link is active. **Inactive** Your WAN link is not active. **Disabled** The WAN interface has been disabled. This can be altered on the **INTERNET** > **ADVANCED** tab.
Connection Mode	The router supports four connection modes: ▪ Cable Modem (DHCP) ▪ DSL Modem (PPPoE) ▪ Static Assigned ▪ PPTP Select the appropriate connection method for your ISP (Internet Service Provider). Based on which connection mode you select, different areas are grayed out (become inaccessible), leaving you only the appropriate fields to fill in. For details on each Connection Mode, refer to *Section 2:Installation*.
Connection Repair	Click to perform a connection repair operation. The type of repair depends on the connection mode selected. For example, for DHCP, the router issues a request for a new IP address from the ISP's DHCP server.
Connection Status	Provides current information about the connection status of the router. Click **Refresh** to update the status.

Field or Button	Description
IP Address	The router's IP Address used to connect to your ISP. It is either automatically displayed or manually entered from information provided by your ISP. For example, if DHCP is selected, this is the IP Address that your router is currently using to access the Internet. If using Static Assigned, then you would enter the IP Address here.
Subnet Mask	Is either automatically displayed or manually entered from information provided by your ISP.
Default Gateway	Is either automatically displayed or manually entered from information provided by your ISP.
Obtain DNS Server Address Automatically	Select **Yes** to obtain the DNS information automatically, or **No** to enter the information manually.
Primary DNS	Is either automatically displayed or manually entered from information provided by your ISP.
Secondary DNS	Is either automatically displayed or manually entered from information provided by your ISP.
Tertiary DNS	Is either automatically displayed or manually entered from information provided by your ISP.
Host Name	Is either automatically displayed or manually entered from information provided by your ISP.
Domain Name	Is either automatically displayed or manually entered from information provided by your ISP.

Field or Button	Description
PPP Authentication	Available when PPPoE or PPTP is selected in the Connection Mode. Check with your ISP for the proper type of authentication to choose: ▪ Auto – The router will offer PAP or CHAP to the server, and the server will determine which PPP Authentication to use. ▪ PAP – Password Authentication Protocol. ▪ CHAP – Challenge Handshake Authentication Protocol.
PPP User Name	Is either automatically displayed or manually entered from information provided by your ISP.
PPP Password	Is either automatically displayed or manually entered from information provided by your ISP.
PPP Password Confirm	The same password as the PPP Password field.
PPP Service Name	Is either automatically displayed or manually entered from information provided by your ISP.
PPP Idle Timer	Click to enable PPP Idle Time.
PPP Idle Time	Enter the amount of time to elapse before the router automatically disconnects the connection to the Internet.
PPP Auto Reconnect	Enables the router to automatically reconnect to the Internet when the connection has been cut.
PPTP Client IP	Is either automatically displayed or manually entered from information provided by your ISP.
PPTP Server IP	Is either automatically displayed or manually entered from information provided by your ISP.

Internet - Advanced

This screen enables you to adjust additional Internet settings. To access the screen, click **INTERNET** > **ADVANCED**. Click **APPLY** to save changes, click **CANCEL** to undo unsaved changes.



Field or Button	Description
WAN Ethernet Interface	Select to enable the link to the Internet. By disabling this feature, your connection to the Internet is disconnected. The default is enabled.
Factory WAN MAC Address	The default MAC address of the WAN port. A MAC address is a 12-digit code assigned to a unique piece of hardware for identification. You can find the MAC Address on the label on the bottom of your unit. Some ISPs require that you register the MAC address of your PC's network adapter.

Field or Button	Description
Clone WAN MAC Address	Your router has the ability to duplicate the MAC address of your PC's network adapter into the router's WAN MAC address. To avoid calling your ISP and changing the MAC address that is registered with the ISP, follow these instructions: **1** Click to **enable** the feature. **2** Either enter a MAC address or from the Learned MAC Address field, double-click on a displayed MAC address. This selects the MAC Address into the Cloned MAC Address field. **3** Click **APPLY** to clone the address.
Cloned WAN MAC Address	The Cloned MAC address appears here.
Learned MAC Address(es)	The current learned MAC address(es) on the LAN side (your local network) is displayed. The unit will detect all of the MAC addresses on the LAN and will display them here. Click **Refresh** to obtain the current MAC Address(es).

Internet - Network Diagnostic

This screen helps you troubleshoot problems that might occur. To access the screen, click **INTERNET** > **NETWORK DIAGNOSTIC**.

Ping	An Internet utility used to determine whether a particular IP address is online by sending out a packet (block of data) and waiting for a response.
Trace Route	An Internet utility that traces the route from the client machine to the remote host being contacted. It reports the IP addresses of all the routers in between.

Both utilities are initiated using the same method. Use the following procedure for each:

1. Enter the ***Host Name*** or ***IP Address*** for which you require information.
2. Click **Ping** or **Trace Route** to activate the utility. The results of your query are displayed.

Configuring Parental Control Settings

The settings described in this section enable you to tailor the type of content you want to allow your router to access. You create a policy that defines content access. Each policy can be associated with all the PCs the router supports. For example, a “Kids Policy” could be defined and assigned to all PCs that a child can access.

Also, a single policy can encompass multiple time schedules and multiple periods that can be assigned to any given PC. For example, a PC might be associated with a “Weekday Kids Policy” and a “Weeknight Parent” policy.

Each policy uses a content filter keyword list, meaning any sites with content containing these keywords are blocked. Each policy can also use a URL list that contains URLs that are specifically denied or allowed.

In this way, it is possible to explicitly block access to certain sites or to create a “walled garden” in which access is only granted to a select group of websites.

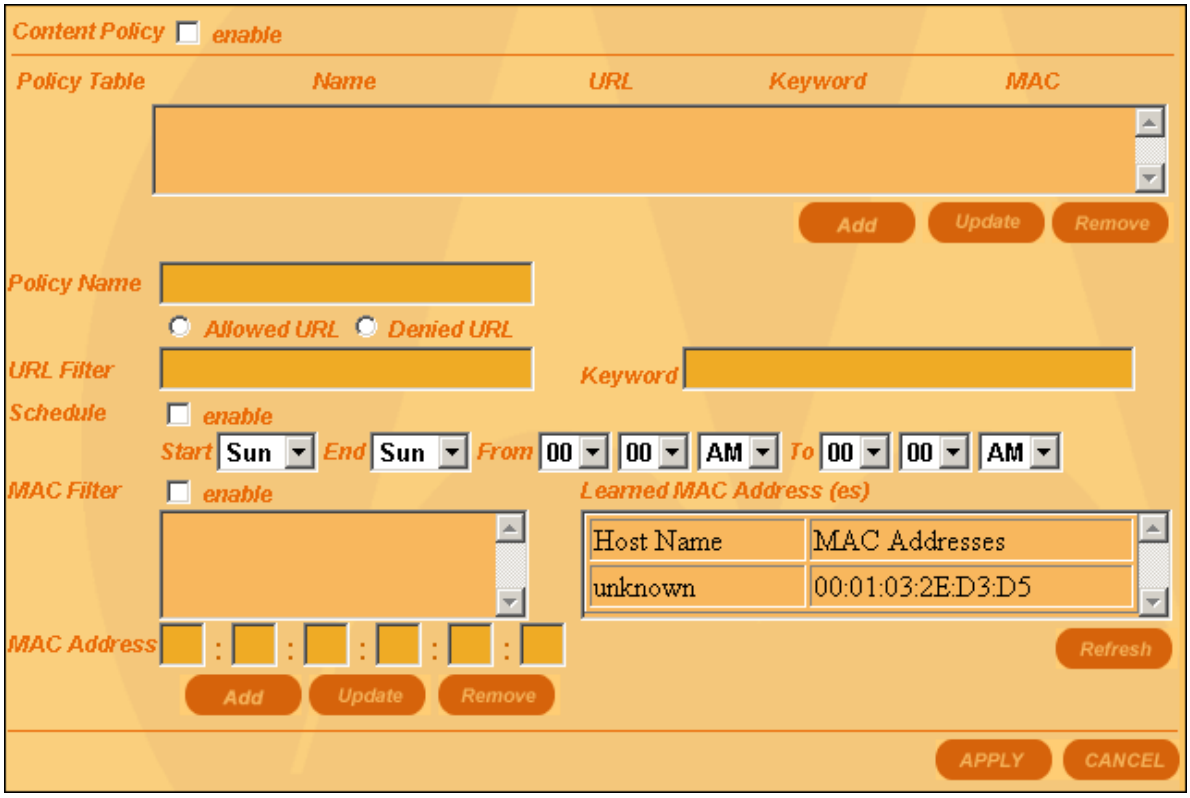
The following screens are available in Parental Control:

- Content Policy
- URL Log

Parental Control - Content Policy

From this screen you are able to define up to ten Policies that define what, when, and where the router accesses. Detailed directions for creating a policy appears after the field descriptions.

To access the screen, click **PARENTAL CONTROL** > **CONTENT POLICY**. Click **APPLY** to save changes, click **CANCEL** to undo unsaved changes.



Field	Description
Content Policy	Enables or disables the Content Policy feature. The default is disabled.
Policy Table	The defined Policies appear here. You can **Add**, **Update**, and **Remove** Policies in the table by selecting it and performing the action.
Policy Name	The Name of the policy, up to 32 characters. You can enter up to ten different policies.
Allowed URL	The URL that the recipient of the policy is able to access. For example, a Kid Policy would be able to access: www.kids.com. Separate multiple URLs with semicolons.

Field	Description
Denied URL	The URL that the recipient of the policy isn't able to access. For example, a Kid Policy would not be able to access: www. xxx. com. Separate multiple URLs with semicolons.
URL Filter	Enter the URL for Allow or Deny.
Keyword	Enter the Keyword to filter. Words that deny Internet access to the PC whenever the PC encounters them. For example, the word "cormorant" will deny the PC access to www.audubon.org. Separate multiple Keywords with semicolons.
Schedule	The time of day that the policy is in effect. Click to enable.
MAC Filter	Select to enable the MAC Filter. This will use MAC addresses for filtering. You can enter multiple MAC addresses for a single policy or multiple policies for a single MAC address. Manually enter a MAC Address or click on a Learned MAC Address. Click **Add** (below MAC Address) to enter it into the MAC Filter list. You can **Update** and **Remove** MAC Address in the table by selecting it and performing the action.
Learned MAC Address(es)	The MAC address(es) discovered on the LAN appear here.

To create a policy, follow this procedure:

1 Enter a Name in the Policy Name field.

2 Decide if you want to Allow or Deny a URL. You can add more than one URL, separated by semicolons.

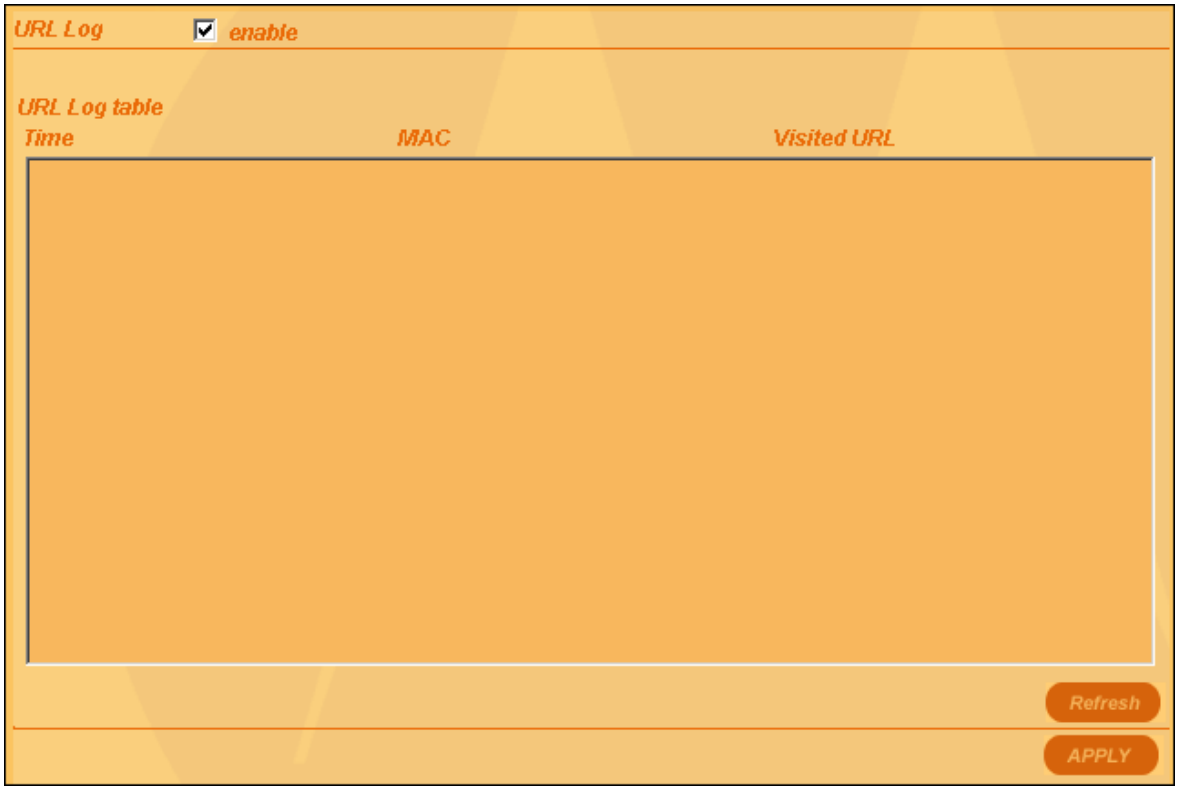
The following selections are optional for the policy:

- Enter a Keyword filter.
- Enable a time-based policy by enabling and selecting the time/date options.
- Select a MAC Address to which the policy will apply. You can easily select a MAC Address by clicking one in the Learned MAC Address field.

3 Click **Add** (below the Policy table) to save the policy.

Parental Control - URL Log

This screen enables you to view URLs (web site addresses) that have been accessed by PCs on your network. To access the screen, click **PARENTAL CONTROL** > **URL LOG**. Click **APPLY** to save changes. Click **Refresh** to update the list with the latest URL Log.



Field	Description
Time	Displays the time of access.
MAC	Displays the PC's MAC address.
Visited URL	The URL (website) that the PC has accessed.

Configuring Networking Settings

The Configuring Networking subsections describe the settings that enable you to configure your router to work with your Local Area Network (LAN). Generally use the default settings, as deeper knowledge of computer networking is required when adjusting these settings.

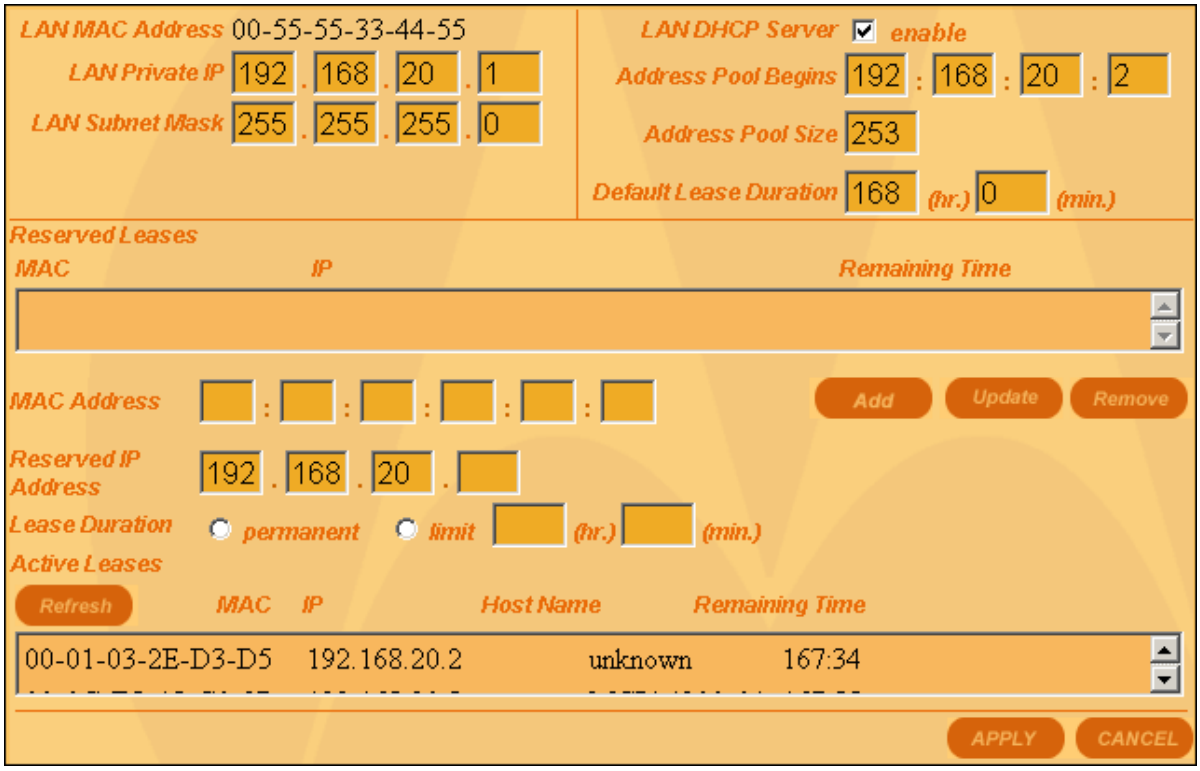
The following screens are available in Networking:

- DHCP Server
- DNS Proxy
- Routing
- DDNS
- NAT
- Port Trigger
- Virtual Server
- Firewall

Networking - DHCP Server

The Domain Host Control Protocol (DHCP) server automatically assigns IP addresses to all the clients on your network, relieving you of the responsibility for issuing separate IP addresses. *It is highly recommended that you administer your network using the DHCP Server function.* The PCs must be configured to "Obtain an IP Address Automatically." See the *Installation* section of this User Guide for further details.

To access the screen, click **NETWORKING** > **DHCP SERVER**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



Field	Description
LAN MAC Address	Displays the LAN MAC address of the router. This field cannot be edited.
LAN Private IP	Enables you to create your own private IP network. Enter an IP address string that you will use for your network. Because it is a private network, your router gives you the ability to choose any string you prefer. The default is 192.168.20.1

Field	Description
LAN Subnet Mask	Enables you to create your own Subnet Mask for your network. The Subnet Mask determines which portion of a destination LAN IP address is the network portion and which portion is the host portion. Enter a Subnet Mask address that you will use for your network. The default is 255.255.255.0
LAN DHCP Server	Enables or disables the DHCP server. You can only run one DHCP server on your network. The default is enabled.
Address Pool Begins	Based on what is entered in the LAN Private IP field, the number entered here is where the router starts handing out IP numbers. So, using the default IP address, the next number provided would be 192.168.20.2.
Address Pool Size	You are able to reserve up to 253 slots on your DHCP server for potential clients. For example, when using the router's default IP of 192.168.20.1, then all numbers up to 192.168.20.254 are available for use. The default is 253. If you want to make available every number, enter 253.
Default Lease Duration	Displays the Hours and Minutes of the default lease duration. Enter in a new duration. The default is 8 hours.

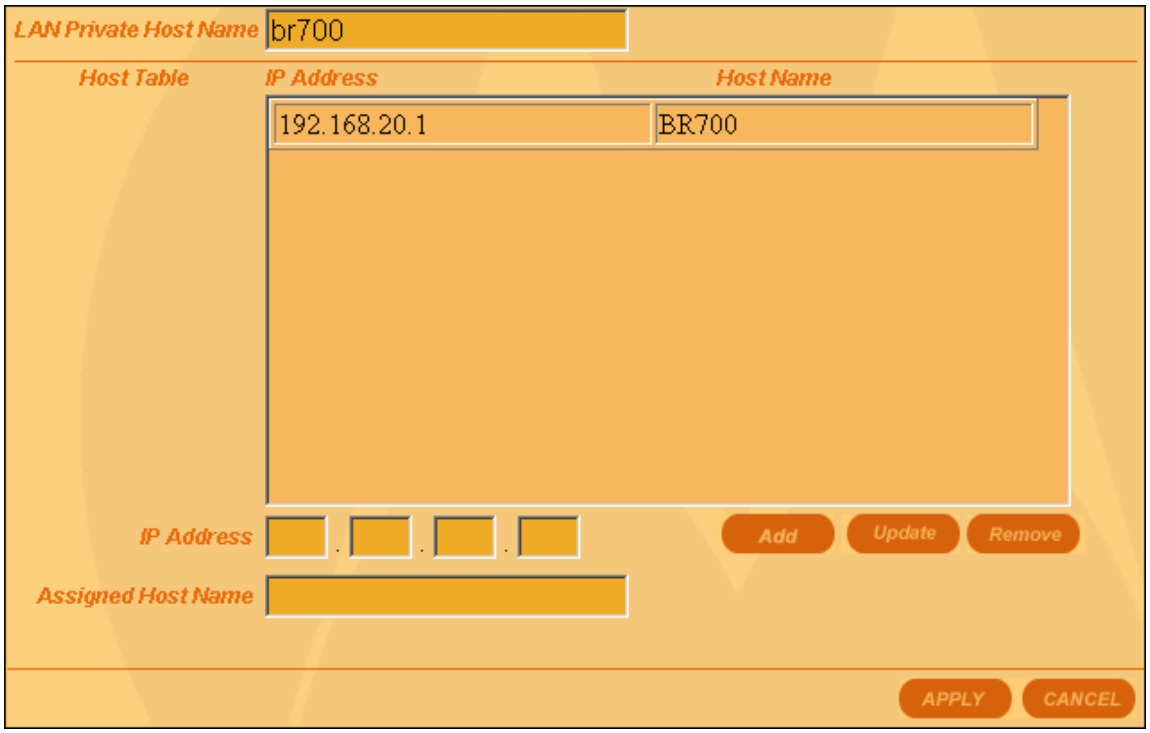
Field	Description
Reserved Leases	The DHCP reserves a set IP addresses. However, if you require a specific IP for a specific device, such as a print server: To reserve a lease: **1** Enter a new MAC Address. **2** Enter the reserved IP Address. **3** Choose the duration type. If limited, enter the lease duration value. **4** Click **Add** to reserve the lease. To update or remove a lease, select it and then click **Update** or **Remove**.
Active Leases	Displays the current clients that the DHCP server has assigned IP addresses. Displaying only active leases with the following: MAC Address, IP address, Host Name, and the duration of its lease. Click **Refresh** to obtain the latest list.

Networking - DNS Proxy

This feature is used only on your Private network. The feature translates domain or website names into Internet addresses or URLs using the Domain Name System (DNS).

This feature can be used to add the mappings between a Static IP Address and a Host Name. This is most useful for devices like printer servers.

To access the screen, click **NETWORKING** > **DNS PROXY**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.

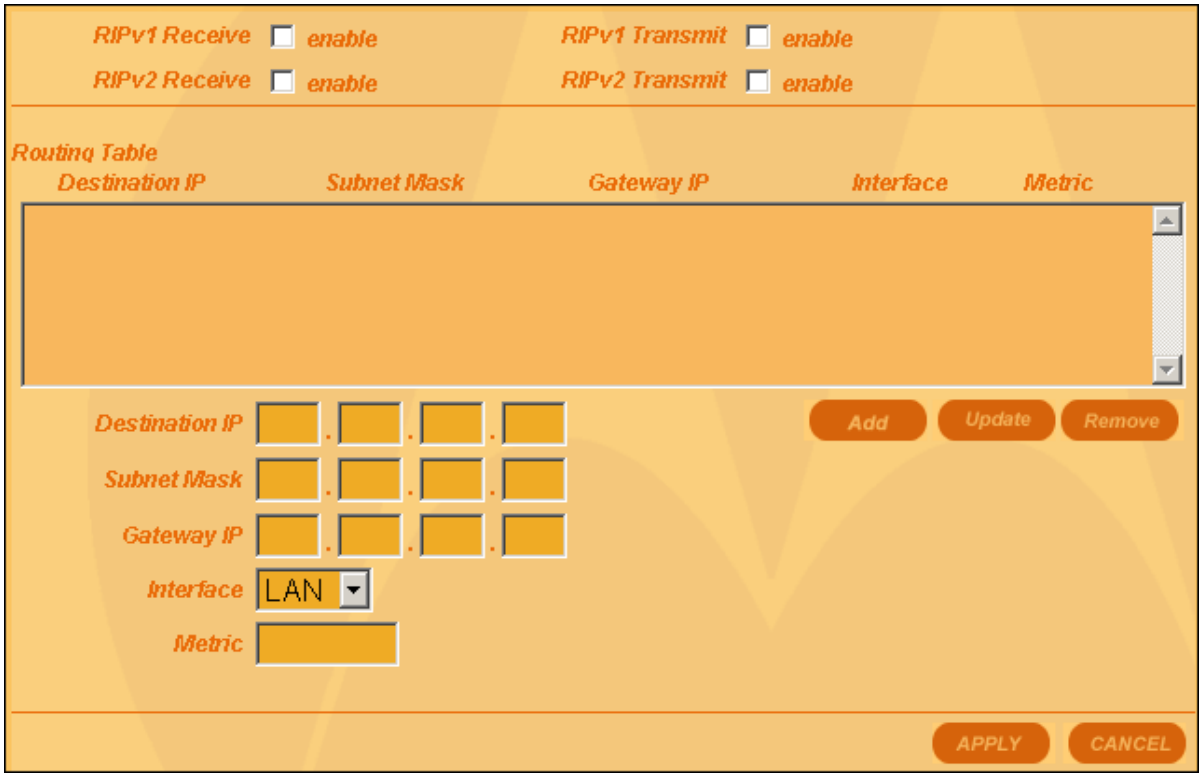


Field	Description
LAN Private Host Name	Displays the current Host name for the router. The default is “br700” (all lower case, without quotation marks).
Host Table	Displays the Host Name assignments.
IP Address	Enter the IP Address that has been statically assigned for the LAN device.
Host Name	This is the Host Name to be assigned to the IP address. Click **Add** to assign the Host Name and IP address. To update or remove a Host Name, select it and then click **Update** or **Remove** the Host Name assignment.

Networking - Routing

You can define up to 20 static routes that specify the Network Destination, Subnet Mask, Gateway, Interface, and Metric. You configure the Network Routing Table here.

RIP (Routing Information Protocol) versions 1 and 2 are routing protocols that are part of the TCP/IP protocol standard. RIP dynamically determines a route based on the smallest hop count between source and destination. To access the screen, click **NETWORKING** > **ROUTING**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



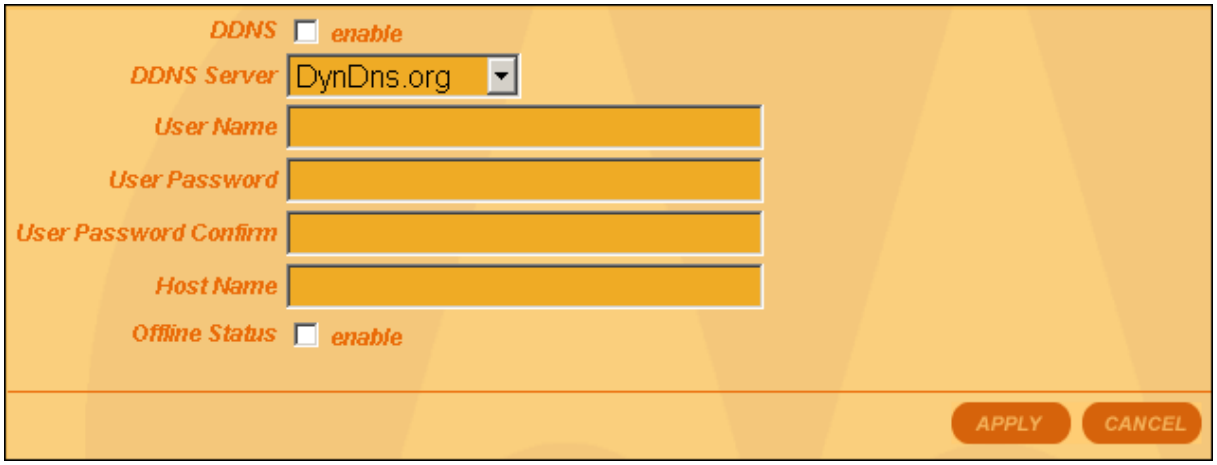
Field	Description
RIPv1 Receive	Enables or disables RIPv1 Receive. The default is disabled.
RIPv2 Receive	Enables or disables RIPv2 Receive. The default is disabled.
RIPv1 Transmit	Enables or disables RIPv1 Transmit. The default is disabled.

Field	Description
RIPv2 Transmit	Enables or disables RIPv2 Transmit. The default is disabled.
Routing Table	To add a Routing Entry: **1** Enter a Destination IP Address, Subnet Mask, Gateway IP. **2** Select WAN or LAN Interface. **3** Enter a Metric. **4** Click **Add** to enter the Routing Entry into the Routing Table. To edit an entry: **1** Double-click an entry in the Routing Table. **2** The entry will automatically fill in the fields. Edit as necessary. **3** Click **Update** to update the Routing entry. To remove: **1** Click the Routing entry. **2** Click **Remove**.

Networking - DDNS

The router supports the Dynamic Domain Name System (DDNS) feature. DDNS enables you to assign a fixed host and domain name to a dynamic Internet IP address. It is useful when you are hosting your own web server, FTP server, or another server behind the router. Before you can use this feature, you must sign up for DDNS service at a DDNS service provider, such as www.dyndns.org or www.changeip.com. Once you have signed up, write down your User Name and Password from the service.

To access the screen, click **NETWORKING** > **DDNS**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



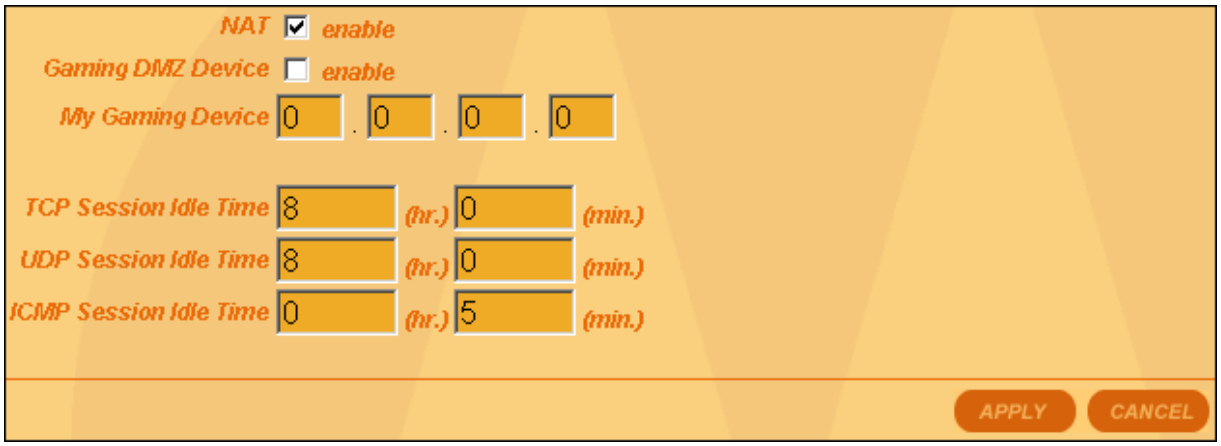
Field	Description
DDNS	Enables or disables DDNS. The default is disabled.
DDNS Server	Select the desired DDNS service provider.
User Name	Enter the User Name (up to 30 bytes) provided by the DDNS provider.
User Password	Enter the Password (up to 30 bytes) provided by the DDNS provider.
User Password Confirm	Re-enter the Password provided by the DDNS provider.
Host Name	Enter a desired Host Name for your WAN IP Address.
Offline Status	Enable or disables Offline Status. When enabled, this automatically redirects a request for your server to a backup server. The DDNS provider will recognize this has been enabled and will provide direction on how to access the backup server.

Networking - NAT

Network Address Translation (NAT) translates multiple IP addresses on a private LAN to one public address that is sent out to the Internet by your ISP. This adds a level of security since the IP address of a PC connected to the private LAN is never transmitted on the Internet.

A gaming Demilitarized Zone (DMZ) allows one IP address (computer or device) to be exposed to the Internet for online game playing or video conferencing.

To access the screen, click **NETWORKING** > **NAT**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



Field	Description
NAT	Enables or disables NAT. The default is enabled.
Gaming DMZ Device	Click to enable. The default is disabled.
My Gaming DMZ Device	Enter the IP Address for your Gaming Device. For security purposes, turn off your gaming device when not in use so that it does not become the target of intrusion. The default is disabled.
TCP Session Idle Time	The TCP Session Idle Time. The time that elapses before it is assumed the session has timed out. The default is 8 hours.

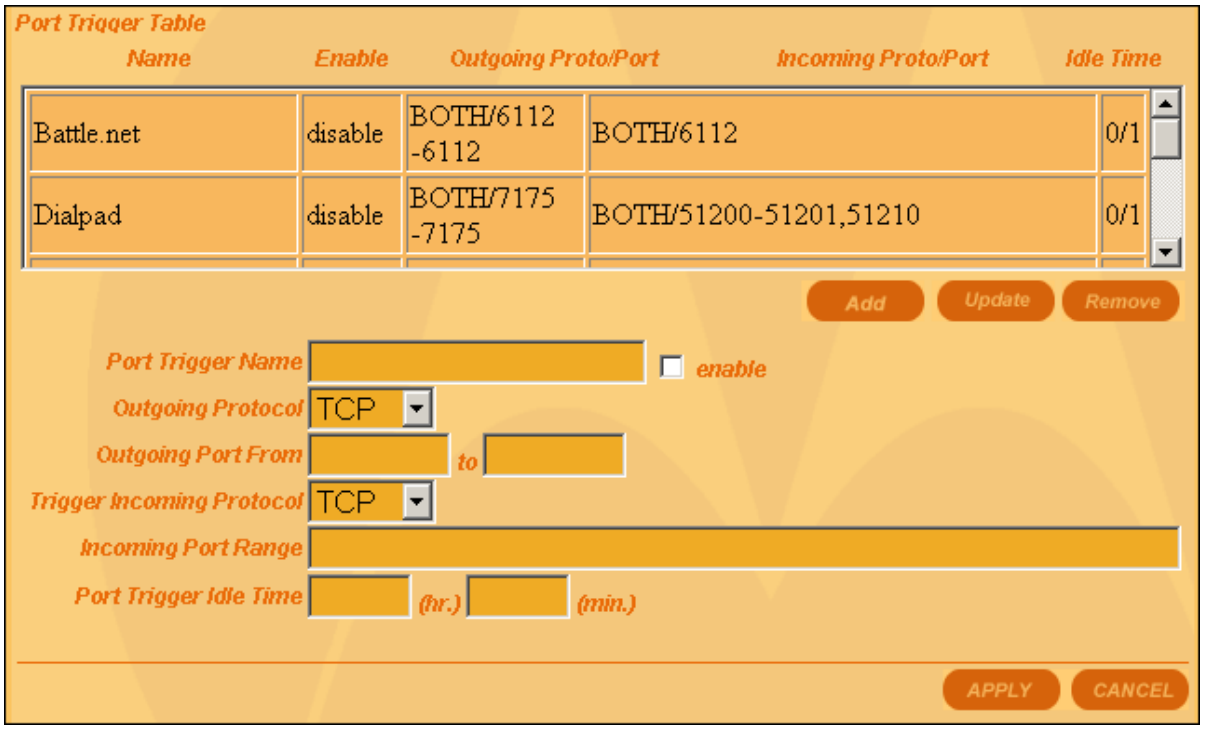
Field	Description
UDP Session Idle Time	User Datagram Protocol. A method used along with the IP to send data in the form of message units (datagram) between network devices over a LAN or WAN. Used primarily for broadcasting messages over a network. The default is 8 hours.
ICMP Session Idle Time	The Internet Control Message Protocol is a protocol used for error, problem, and informational messages sent between IP hosts and gateways. The default is 5 minutes.

Networking - Port Trigger

When you run a PC application that accesses the Internet, it typically initiates communications with a computer on the Internet. In some applications, especially gaming, the computer on the Internet also initiates communications with your PC. Because NAT does not normally allow these incoming connections to occur, the BR700 supports port triggering.

The BR700 is configured with port triggering for some common applications. You can also configure additional port triggers if needed. Configuring port triggers for an application requires a Port Trigger entry, explained below.

To access the screen, click **NETWORKING** > **PORT TRIGGER**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



To add a Port Trigger entry:

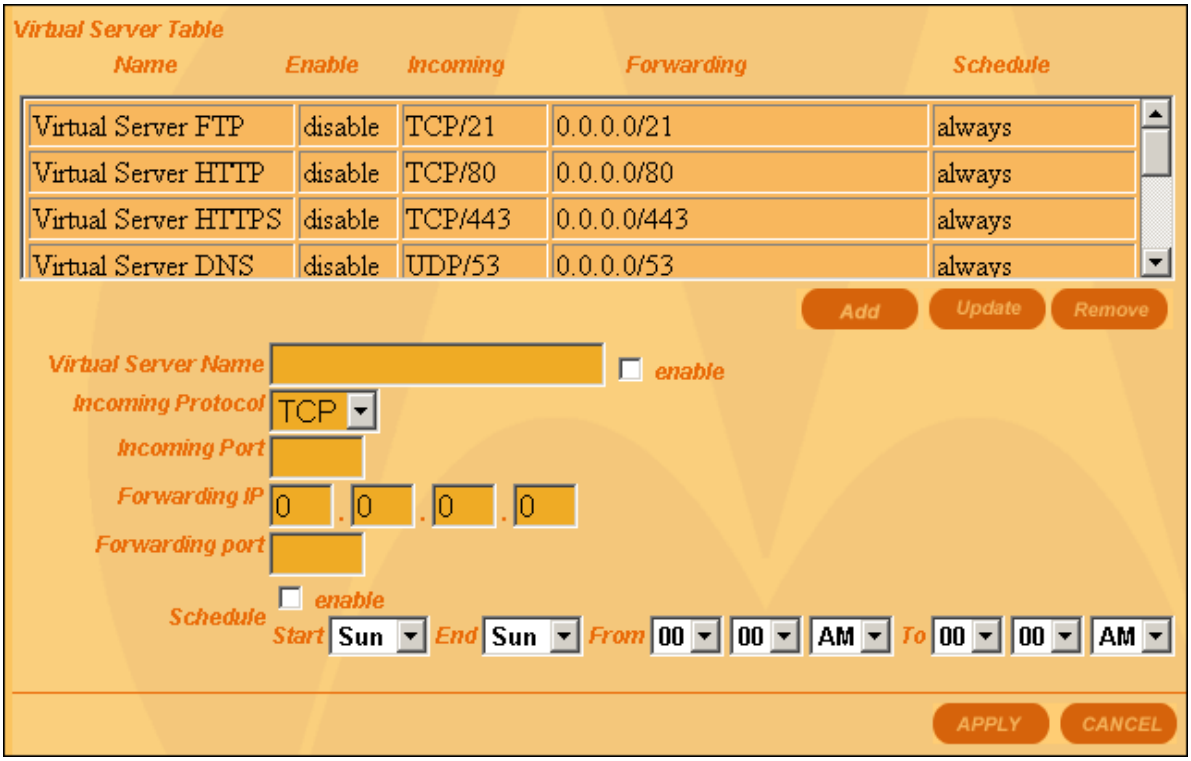
1. *Port Trigger Name*: Enter the name of the application. There is a limit of 32 characters for the name. Click to enable if you wish it to become active. Otherwise, you can save the information and enable it at later date. To enable at a later date, select the entry, check **enable**, then click **Update**.
2. *Outgoing Protocol*: From the drop down box, select from TCP, UDP, or Both.
3. *Outgoing Port*: Enter the *From* and *To* ranges (0 to 65535) for your application.
4. *Trigger Incoming Protocol*: From the drop down box, select from TCP, UDP, or BOTH.
5. *Incoming Port Range*: Enter continuous value(s) (0 to 65535), separated by dashes, for your application. You can also enter multiple non-continuous values, separated by semicolons.
6. *Port Trigger Idle Time*: Enter the elapsed time before the port mapping closes.

To update or remove an entry, select it and then click **Update** or **Remove** to perform the action.

Networking - Virtual Server

The Virtual Server sets up an automatic inbound forwarding mechanism for services running on your home computer, such as web servers, email servers, or other specialized applications. When you use this service, it is suggested that you use Static IP and not DHCP, because the DHCP server may change the IP address during usage. You may use DHCP by reserving an IP address.

The table below lists the current Port Forwarding rules. To access the screen, click **NETWORKING** > **VIRTUAL SERVER**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



To add a Virtual Server entry:

1. *Virtual Server Name*: Enter the name of the server. There is a limit of 32 characters for the name. Click to enable if you wish it to become active. Otherwise, you can save the information and enable it at later date. To enable at a later date, select the entry and then check enable.
2. *Incoming Protocol*: From the drop down box, select either TCP or UDP.
3. *Incoming Port*: Enter the port value (0 to 65535).
4. *Forwarding IP*: Enter the IP Address of the server to which you will forward.
5. *Forwarding Port*: Enter the port value (0 to 65535).

6 *Schedule:* This is an optional feature. Click to enable. Select the time for the forwarding service to be active.

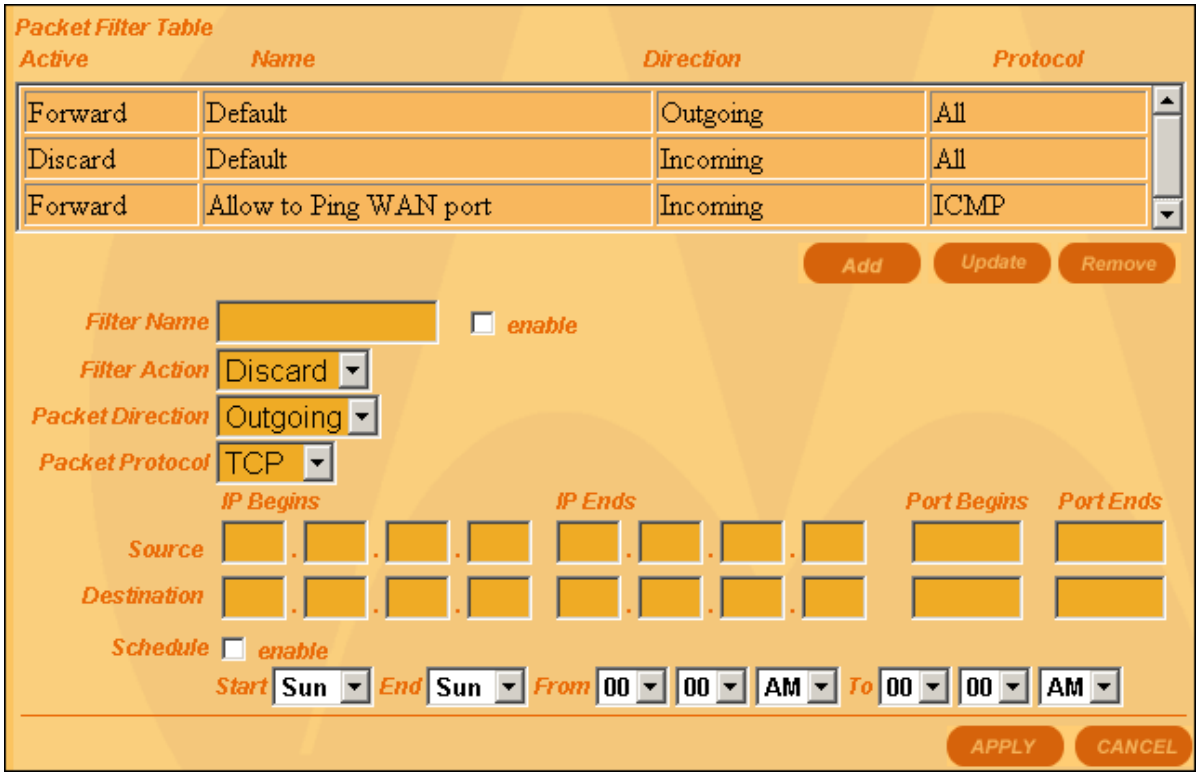
To update or remove an entry, select it and then click **Update** or **Remove** to perform the action.

Networking - Firewall

This security device shields your network from the Internet. A firewall, working closely with a router, examines each network packet to determine whether to forward it toward its destination. The router allows further customization of this packet sniffing by allowing you to modify how and what can or cannot enter the router.

Additionally, the position of the rule within the table determines the priority of the rule. For example, the first rule in the table applies, then the second, etc. If the first rule deletes a 'bad' packet of information, then the remaining rules are not invoked.

To access the screen, click **NETWORKING** > **FIREWALL**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



To add a Packet Filter entry:

1 *Filter Name*: Enter the name of the packet filter. There is a limit of 32 characters for the name. Click to **enable**.

2 *Filter Action*: From the drop down box, select either Discard or Forward.

3 *Packet Direction*: From the drop down box, select either Outgoing or Incoming.

4 *Packet Protocol*: From the drop down box, select from TCP, UDP, ICMP, or All.

5 *Source* and *Destination*: Enter the IP range and Port ranges (0 to 65535).

6 *Schedule:* This is an optional feature. Click to enable. Select the time for the packet filter to be active.

To update or remove an entry, select it and then click **Update** or **Remove** to perform the action.

Configuring Control Panel Settings

The Control Panel screens enable administrative maintenance for your router, such as changing your User Name/Password, updating your firmware, or backing up your configuration.

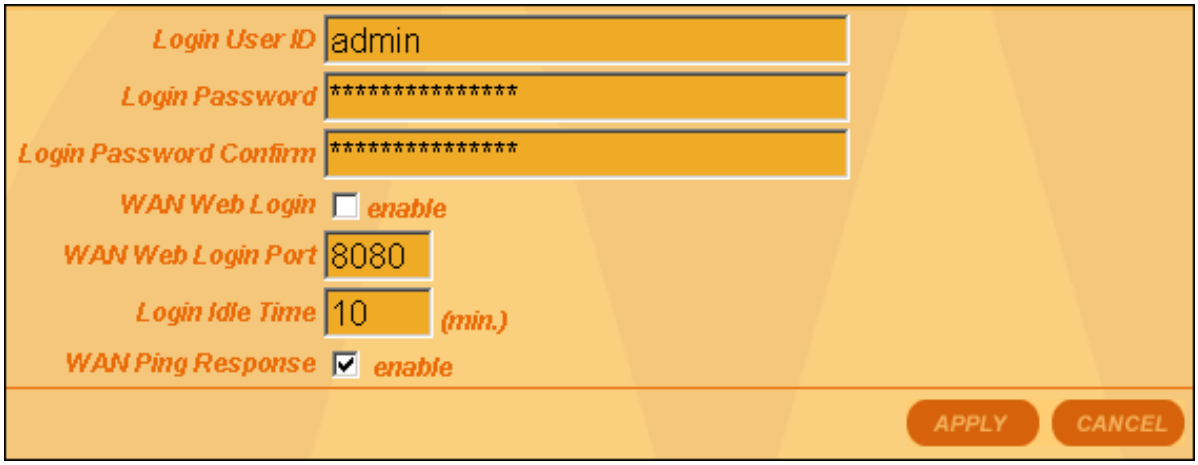
The following screens are available in Control Panel:

- Device Security
- Firmware Update
- Configuration Data
- Time
- UPnP
- Event Log

Control Panel - Device Security

This screen enables you to change your User ID and password and enables you to manage your router remotely.

To access the screen, click **CONTROL PANEL** > **DEVICE SECURITY**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



Field	Description
Login User ID	Changes the User ID used for logging into the router's web-based utility. It cannot be longer than 63 bytes. A blank user name is not allowed. The default is "admin".
Login Password	Use this option to change the Password, used to log into the router's web based utility. It cannot be longer than 63 bytes. A blank password is not allowed. The default is "motorola".
Login Password Confirm	Re-enter the User Password.
WAN Web Login	This enables you to log into the router from the Internet. Click to enable. The default is disabled.
WAN Web Login Port	Enables you to specify different ports on the router to allow remote login. The default is 8080.
Login Idle Time	The amount of idle time (no actions occur) that elapses before the router automatically logs off the user. The default is 10 minutes.

Field	Description
WAN Ping Response	Enables a remote user to ping the router. Select to enable WAN Ping response. The default is disabled.

Control Panel - Firmware Update

This screen enables you to update the firmware (router's hardware control mechanism). Listed on this screen is the current version of the Model Number, Serial Number, and Firmware Number; enabling you to verify that you are running the most current version.

Access this website www.motorola.com/broadband/networking to check for a firmware update.

To access the screen, click **CONTROL PANEL** > **FIRMWARE UPDATE**.

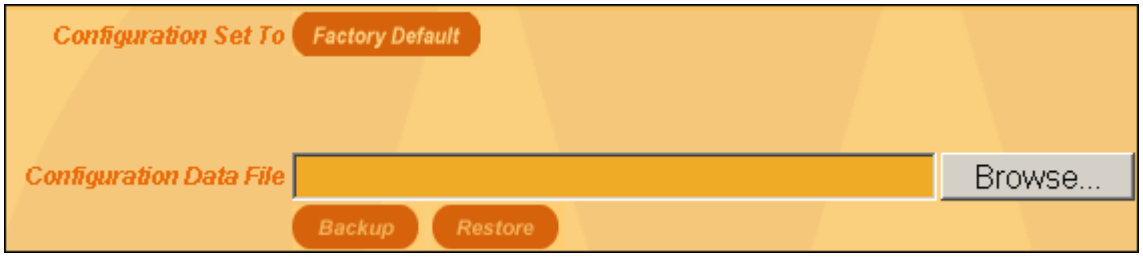
To update the firmware:

1. Download the latest file to your computer from the website.
2. To locate the file you downloaded, type the path to the file or click **Browse** and navigate to it.
3. Click **Update** to update the router with the selected firmware file.

Control Panel - Configuration Data

This screen enables you to save and restore your settings, which you have currently configured for your router, to a file. You are also able to reset the router to the factory default settings.

To access the screen, click **CONTROL PANEL** > **CONFIGURATION DATA**.



To reset the router to its original configuration; click **Factory Default**.

To backup your settings,

1 Click **Backup**.

2 From the pop-up window, choose the destination for the file.

3 Enter a descriptive file name.

To restore your settings:

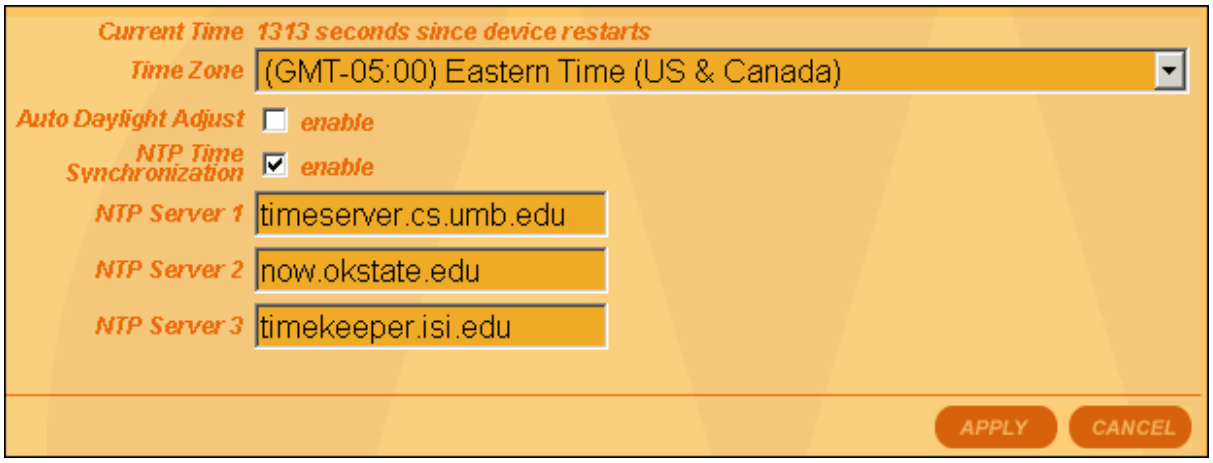
1 Locate the Configuration file on your computer by entering the path to the file or click **Browse** and navigate to it.

2 Click **Restore** to reapply the saved settings with the selected file.

Control Panel - Time

This screen enables you to adjust time settings.

To access the screen, click **CONTROL PANEL** > **TIME**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



Field	Description
Current Time	The current time is displayed.
Time Zone	Select your local time zone. The default is EST.
Auto Daylight Adjust	If you want to have the unit adjust automatically for Daylight Savings Time, select to enable this feature. The default is enabled.

Field	Description
NTP Time Synchronization	If you want the unit to automatically check the current time, select to enable this feature. The default is enabled.
NTP Server List	Lists the current Network Time Protocol (NTP) servers from which you can choose for synchronization. Or, enter the host name or IP address for the Time Server.

Control Panel - UPnP

This screen enables you to enable/disable Universal Plug and Play (UPnP). This allows an application to smoothly map to the router.

To access the screen, click **CONTROL PANEL** > **UPNP**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.

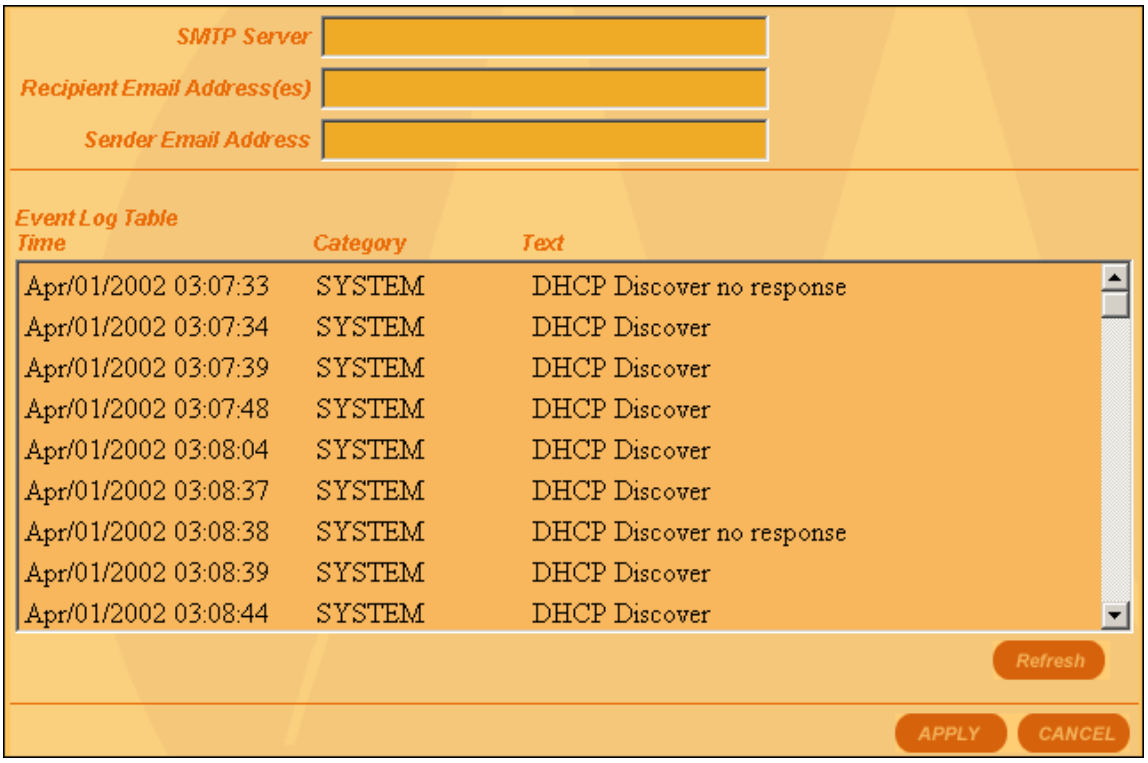
Field	Description
LAN UPnP Device	Click to disable this feature. The default is enabled.

Control Panel - Event Log

The Event Log window enables you to view events (network activity, when it occurred, and a textual description) that occur on your network.

On this screen, you can enter the SMTP server name or IP address, the recipient Email addresses, and the sender Email address so you can be notified via email with the Event Log information.

To access the screen, click **CONTROL PANEL** > **EVENT LOG**. Click **APPLY** to save your settings or **CANCEL** to cancel changes.



To setup your event notification:

1. Enter the SMTP Server Name or its IP address.
2. Enter the Recipient Email Address(es).
3. Enter the Sender Email Address.

To view Event Log information, click **Refresh** to view the latest activity. The table lists the time of the event, the category, and a textual description of the event.

Section 4:Troubleshooting

This section details possible solutions to common problems that might occur in using the router.

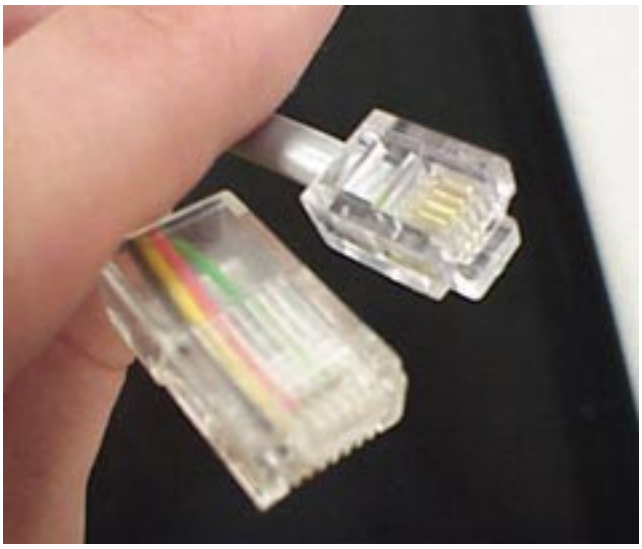
Contact Us

If you are unable to locate a solution here, please access our website at www.motorola.com/broadband/networking for the latest information. You can also reach us 7 days a week, 24 hours a day at 1-877-466-8646.

Hardware Solutions

My computer is experiencing difficulty in connecting to the router.

- Check all of your cabling connections that they are tight and secured. This includes the cables from the wall to your modem, between the router and modem, and, if available, from the router to your PC. Ensure that your LEDs are not lit Red or not at all. For further information about LED descriptions, see **Section 1: Overview**.
- Ensure that you are using Ethernet cables and not telephone cables between the router and modem or router and PC. Ethernet cables use a wider RJ-45 style plug using 8 wires where telephone style plugs use the smaller RJ-11 style plug using 4 to 6 wires.



The plug on the left is RJ-45; the plug on the right is RJ-11 – use only RJ-45.

- Ensure that your Ethernet adapter is enabled. Check the System Tray at the bottom right of your display to see an icon that looks like a monitor. You can click on this to see the status of your Ethernet adapter. Also on your PC in Control Panel > Network and Dial-Up Connections, you can examine the state of your Ethernet adapter.

My broadband modem already uses a built-in router.

Because the two routers will cancel each other out, turning off the NAT function in the modem will enable access for your router. Refer to your modem's documentation for further instructions.

Software Solutions

I would like to test to see if my Internet connection is alive.

For this, you will use the *ping* command to test the connection. Before attempting, ensure that **Obtain an IP address automatically** has been selected in the computer's settings and that you have an IP address assigned. Refer to Section 2: Configuration > Configure Your Computers, for further details.

1 Open a command prompt by clicking **Start** and **Run**.

- For Windows 98 and ME, in the *Open* field, type **command** and press Enter or OK.
- For Windows 2000 and XP, type **cmd**.
- Or, navigate using your **Start** button to Programs>Accessories>Command Prompt.

2 In the Command window, type **ipconfig**.

- You should see an IP address for your network adapter:

```
Ethernet Adapter Local Area Connection:

Connection-specific DNS Suffix.: Example.example.example.com.

IP Address. . . . . . . . . . . . : 192.168.20.2

Subnet Mask . . . . . . . . . . . : 255.255.255.0

Default Gateway . . . . . . . . . : 192.168.20.1
```

3 In the *Command* window, type **ping** *the Router's IP address* and press **Enter**. For example type: **ping 192.168.20.2**.

There is a good possibility that the Default Gateway's IP address is the router's IP address. You can verify the router's IP address on the Internet > Basic screen.

- If you receive a reply (the first word will be *Reply…*), then your computer is connected to the router. Proceed to *Step 4*.
- If you do NOT receive a reply, try from a different computer to verify that the first PC is not the cause of the problem.

4 In the *Command* window, type **ping** and your **ISP's default gateway** and press **Enter**. For example, type ping 192.168.20.1.

- If you receive a reply (It might look something like this: *Reply from 216.109.125.72…*), then your connection to the internet is alive and well. You can verify the ISP's IP address at the Default Gateway field on the Internet > Basic screen.
- If you do NOT receive a reply, try from a different computer to verify that the first PC is not the cause of the problem.

5 If you cannot determine your ISP's default gateway, ping www.yahoo.com or another known web location.

I cannot access the Configuration Utility for the router.

- Verify your Ethernet connection to the router.
- Verify that the IP address of the PC being used to configure the router is on the same network as the router's configuration IP address.
- The IP address of your network adapter must be on the same network and not a duplicate of any others on the network (for example: 192.168.20.3 and using a subnet mask of 255.255.255.0 can be used to login to the router's default IP address of 192.168.20.1). Refer to Section 2: Configuration > Configure Your Computers on how to adjust the IP address for your PC.
- Verify that you can ping the router on this IP address.
  - In the *Command* window, type **ping** and your router's default IP address and press **Enter**. For example, type: **ping 192.168.20.2**.
  - If you have changed the factory configured default IP address of the router, you will need to set your network adapter accordingly.
- Verify you are entering the correct URL in the browser. The default is http://192.168.20.1. If you think you have changed the IP address used to configure the router and cannot remember it, you must reset the unit back to factory defaults. To do this, press and hold the reset button for more the 5 seconds. This clears the router's user settings, including User ID, Password, IP Address, and Subnet mask.

- Once the router is reset to factory default setting, re-verify the Ethernet connectivity and IP address issues.
- Verify you are using the latest version of IE or Netscape. IE 5.2 and below are not supported.

Section 5:Glossary

A

Adapter

A device or card that connects a computer, printer, or other peripheral device to the network or to some other device. An adapter connects a computer to a LAN.

Address translation

See *NAT*.

ASCII

The American Standard Code for Information Interchange refers to alphanumeric data for processing and communication compatibility among various devices; normally used for asynchronous transmission.

B

Bandwidth

The transmission capacity of a medium in terms of a range of frequencies. Greater bandwidth indicates the ability to transmit more data over a given period of time.

bps

Bits Per Second

Broadband

A communications medium that can transmit a relatively large amount of data in a given time period.

C

Cable Modem

A device providing data communications that connects a computer to the Internet, via cable TV network.

Client

In a client/server architecture, a client is a computer that requests files or services such as file transfer, remote login, or printing from the server. Also called a CPE. Also see *server.*

Coaxial Cable

A type of cable consisting of a center wire surrounded by insulation and a grounded shield of braided wire. The shield minimizes electrical and radio frequency interference. Coaxial cable has high bandwidth and can support transmission over long distances.

CPE

Customer Premise Equipment: typically computers, printers, etc, that are connected to the gateway at the subscriber location. CPE can be provided by the subscriber or the cable service provider. Also called a client.

Crossover Cable

A crossover cable is a cable that is used to interconnect two computers by "crossing over" (reversing) their respective pin contacts. A crossover cable is sometimes known as a null modem.

D

Default Gateway

A routing device that forwards traffic not destined to a station within the local subnet.

DHCP

A Dynamic Host Configuration Protocol server dynamically assigns IP addresses to client hosts on an IP network. DHCP eliminates the need to manually assign static IP addresses by “leasing” an IP address and subnet mask to each client. It enables the automatic reuse of unused IP addresses:

The BR700 is simultaneously a DHCP client and a DHCP server.

- A DHCP server at the system headend assigns a public IP address to the BR700.
- The BR700 contains a built-in DHCP server that assigns private IP addresses to clients.

DMZ

De**M**ilitarized **Z**one. This service opens one IP address to the Internet, usually for online gaming, and acts as a buffer between the Internet your network.

DNS

The Domain Name System is the Internet system for converting domain names (like www.motorola.com) to IP addresses. A DNS server contains a table matching domain names such as www.motorola.com to IP addresses such as 192.169.9.1. When you access the world-wide web, a DNS server translates the URL displayed on the browser to the destination website IP address. The DNS lookup table is a distributed Internet database; no one DNS server lists all domain name to IP address matches.

Domain Name

A unique name, such as motorola.com, that maps to an IP address. Domain names are typically much easier to remember than are IP addresses. See *DNS.*

Download

To copy a file from one computer to another. You can use the Internet to download files from a server to a computer.

Driver

Software that enables a computer to interact with a network or other device. For example, there are drivers for printers, monitors, graphics adapters, modems, Ethernet, USB, HPNA, and many others.

DSL

Digital Subscriber Line

Dynamic IP Address

An IP address that is temporarily leased to a host by a DHCP server. The opposite of *Static IP Address*.

E

Ethernet

The most widely used LAN type, also known as IEEE 802.3. The most common Ethernet networks are 10Base-T, which provide transmission speeds up to 10 Mbps, usually over unshielded, twisted-pair wire terminated with RJ-45 connectors. Fast Ethernet (100Base-T) provides speeds up to 100 Mbps. “Base” means “baseband technology” and “T” means “twisted pair cable.”’

Each Ethernet port has a physical address called the MAC address. Also see *MAC address*.

Event

A message generated by a device to inform an operator or the network management system that something has occurred.

F

Firewall

A security software system on the BR700 that enforces an access control policy between the Internet and the LAN for protection.

Firmware

Code that is written onto read-only memory (ROM) or programmable read-only memory (PROM). Once firmware has been written onto the ROM or PROM, it is retained even when the device is turned off. Firmware is upgradeable.

FTP

File Transfer Protocol is a standard Internet protocol for exchanging files between computers. FTP is commonly used to download programs and other files to a computer from web pages on Internet servers.

G

Gateway

A device that enables communication between networks using different protocols. See also *router*.

The BR700 enables up to 253 computers supporting Ethernet to share a single broadband Internet connection.

GUI

Graphical User Interface

H

Hexadecimal

A base-sixteen numbering system that uses sixteen sequential numbers (0 to 9 and the letters A to F) as base units before adding a new position. On computers, hexadecimal is a convenient way to express binary numbers.

Host

In IP, a host is any computer supporting end-user applications or services with full two-way network access. Each host has a unique host number that combined with the network number forms its IP address.

Host also can mean:

- A computer running a web server that serves pages for one or more web sites belonging to organization(s) or individuals
- A company that provides this service
- In IBM environments, a mainframe computer

I

ICMP

Internet Control Message Protocol is a protocol used for error, problem, and informational messages sent between IP hosts and gateways. ICMP messages are processed by the IP software and are not usually apparent to the end-user.

IEEE

The Institute of Electrical and Electronics Engineers, Inc. (http://www.ieee.org) is an organization that produces standards, technical papers, and symposiums for the electrical and electronic industries and is accredited by ANSI.

Internet

A worldwide collection of interconnected networks using TCP/IP.

IP

Internet Protocol is a set of standards that enable different types of computers to communicate with one another and exchange data through the Internet. IP provides the appearance of a single, seamless communication system and makes the Internet a virtual network.

IP Address

A unique 32-bit value that identifies each host on a TCP/IP network. TCP/IP networks route messages based on the destination IP address.

For a Class C network, the first 24 bits are the network address and the final 8 bits are the host address; in dotted-decimal format it appears “network.network.network.host.”

ISDN

Integrated Services Digital Network

ISP

Internet Service Provider

L

LAN

Local Area Network. A local area network provides a full-time, high-bandwidth connection over a limited area such as a home, building, or campus. Ethernet is the most widely used LAN standard.

M

MAC Address

The Media Access Control address is a unique, 48-bit value permanently saved in the ROM at the factory to identify each Ethernet network device. It is expressed as a sequence of 12 hexadecimal digits printed on the unit’s label. You need to provide the MAC address to the cable service provider. Also called an Ethernet address, physical address, hardware address, or NIC address.

MB

One megabyte; equals 1,024 x 1,024 bytes, 1,024 kilobytes, or about 64 million bits.

Mbps

Million bits per second (megabits per second). A rate of data transfer.

MTU

The Maximum Transmission Unit is the largest amount of data that can be transmitted in one discrete message on a given

physical network. The MTU places an upper bound limit on the size of a message that can be transferred by the network in a single frame. Messages exceeding the MTU must be fragmented before transmission, and reassembled at the destination.

Multicast

A data transmission sent from one sender to multiple receivers. See also *broadcast* and *unicast*.

N

NAT

Network Address Translation is an Internet standard for a LAN to use one set of IP addresses for internal traffic and a second set of IP addresses for external traffic. NAT provides some security because the IP addresses of LAN computers are invisible on the Internet.

Network

Two or more computers connected to communicate with each other. Networks have traditionally been connected using some kind of wiring.

NIC

A Network Interface Card converts computer data to serial data in a packet format that it sends over the LAN. A NIC is installed in an expansion slot or can be built-in. Every Ethernet NIC has a MAC address permanently saved in its ROM.

P

Packet

The unit of data that is routed between the sender and destination on the Internet or other packet-switched network.

PCMCIA

The Personal Computer Memory Card International Association sets international standards for connecting peripherals to portable computers. Laptop computers typically have a PCMCIA slot that can hold one or two PC Cards to provide features such as Ethernet connectivity.

PING

A network utility that tests host reachability by sending a small packet to the host and waiting for a reply. If you PING a computer IP address and receive a reply, you know the computer is reachable over the network. It also stands for “Packet Internet Groper.”

Port Triggering

A mechanism that allows incoming communication with specified applications.

PPP

Point-to-Point Protocol is used to transport other protocols, typically for simple links over serial lines. It is most commonly used to access the Internet with a dial-up modem.

PPPoE

Point-to-Point Protocol over Ethernet. Used by many DSL Internet Service Providers for broadband connection.

PPTP

Point-to-Point Tunneling Protocol encapsulates other protocols. It is a new technology to create VPNs developed jointly by several vendors.

Private IP Address

An IP address assigned to a computer on the BR700 LAN by the DHCP server for a specified lease time. Private IP addresses are invisible to devices on the Internet. See also *Public IP Address*.

Protocol

A formal set of rules and conventions for exchanging data. Different computer types (for example PC, UNIX, or mainframe) can communicate if they support common protocols.

Public IP Address

The IP address assigned to the BR700 by the service provider. A public IP address is visible to devices on the Internet. See also *Private IP Address*.

R

RJ-11

The most common type of connector for household or office phones.

RJ-45

An 8-pin modular connector; the most common connector type for 10Base-T or 100Base-T Ethernet networks.

ROM

Read-Only Memory.

Router

On IP networks, a device connecting at least two networks, which may or may not be similar. A router is typically located at a gateway between networks. A router operates on OSI network Layer 3. It filters packets based on the IP address, examining the source and destination IP addresses to determine the best route to forward them.

A router is often included as part of a network switch. A router can also be implemented as software on a computer.

Routing Table

A table listing available routes that is used by a router to determine the best route for a packet.

RTS

Request To Send.

S

Server

In a client/server architecture, a dedicated computer that supplies files or services such as file transfer, remote login, or printing to clients. Also see *client.*

Service Provider

A company providing Internet connection services to subscribers.

SMTP

Simple Mail Transfer Protocol is a standard Internet protocol for transferring e-mail.

Static IP Address

An IP address that is permanently assigned to a host. Normally, a static IP address must be assigned manually. The opposite of *Dynamic IP Address*.

Subscriber

A user who accesses television, data, or other services from a service provider.

Subnet Mask

A methodology that determines what the router will examine for the destination of an IP address. A router delivers packets using the network address.

Switch

On an Ethernet network, a switch filters frames based on the MAC address, in a manner similar to a bridge. A switch is more advanced because it can connect more than two segments.

T

TCP

Transmission Control Protocol on OSI Transport Layer 4 provides reliable transport over the network for data transmitted using IP (network layer three). It is an end-to-end protocol defining rules and procedures for data exchange between hosts on top of connectionless IP. TCP uses a timer to track outstanding packets,

checks error in incoming packets, and retransmits packets if requested.

TCP/IP

The Transmission Control Protocol/Internet Protocol suite provides standards and rules for data communication between networks on the Internet. It is the worldwide Internetworking standard and the basic communications protocol of the Internet.

Tunnel

To place packets inside other packets to send over a network. The protocol of the enclosing packet is understood by each endpoint, or tunnel interface, where the packet enters and exits the network. VPNs rely on tunneling to create a secure network.

Tunneling requires the following protocol types:

- A carrier protocol, such as TCP, used by the network that the data travels over
- An encapsulating protocol, such as IPSec, L2F, L2TP, or PPTP, that is wrapped around the original data
- A passenger protocol, such as IP, for the original data

U

UDP

User Datagram Protocol. A method used along with the IP to send data in the form of message units (datagram) between network devices over a LAN or WAN.

Unicast

A point-to-point data transmission sent from one sender to one receiver. This the normal way you access websites. See also *multicast*.

UPnP

Universal Plug and Play

USB

Universal Serial Bus is a computer interface for add-on devices such as printers, scanners, mice, modems, or keyboards. USB 1.1 supports data transfer rates of 12 Mbps and plug-and-play installation. You can connect up to 127 devices to a single USB port. USB 2.0 supports data rates of 480 Mbps.

V

VoIP

Voice over Internet Protocol is a method to exchange voice, fax, and other information over the Internet. Voice and fax have traditionally been carried over traditional telephone lines of the PSTN (Public Switched Telephone Network) using a dedicated

circuit for each line. VoIP enables calls to travel as discrete data packets on shared lines. VoIP is an important part of the convergence of computers, telephones, and television into a single integrated information network.

VPN

A virtual private network is a private network that uses “virtual” connections (tunnels) routed over a public network (usually the Internet) to provide a secure and fast connection; usually to users working remotely at home or in small branch offices. A VPN connection provides security and performance similar to a dedicated link (for example, a leased line), but at much lower cost.

W

WAN

A wide-area network provides a connection over a large geographic area, such as a country or the whole world. The bandwidth depends on need and cost, but is usually much lower than for a LAN.

WWW

World Wide Web. An interface to the Internet that you use to navigate and hyperlink to information.

Visit our website at:
www.motorola.com/broadband

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